

Figure 1: Magnetic field probe build from a paper clip.

Insulated Aluminium Plate

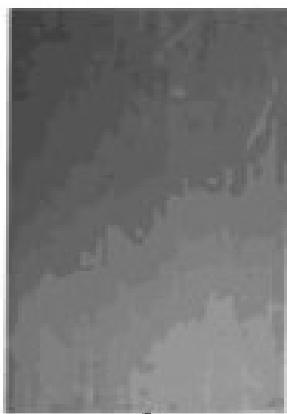
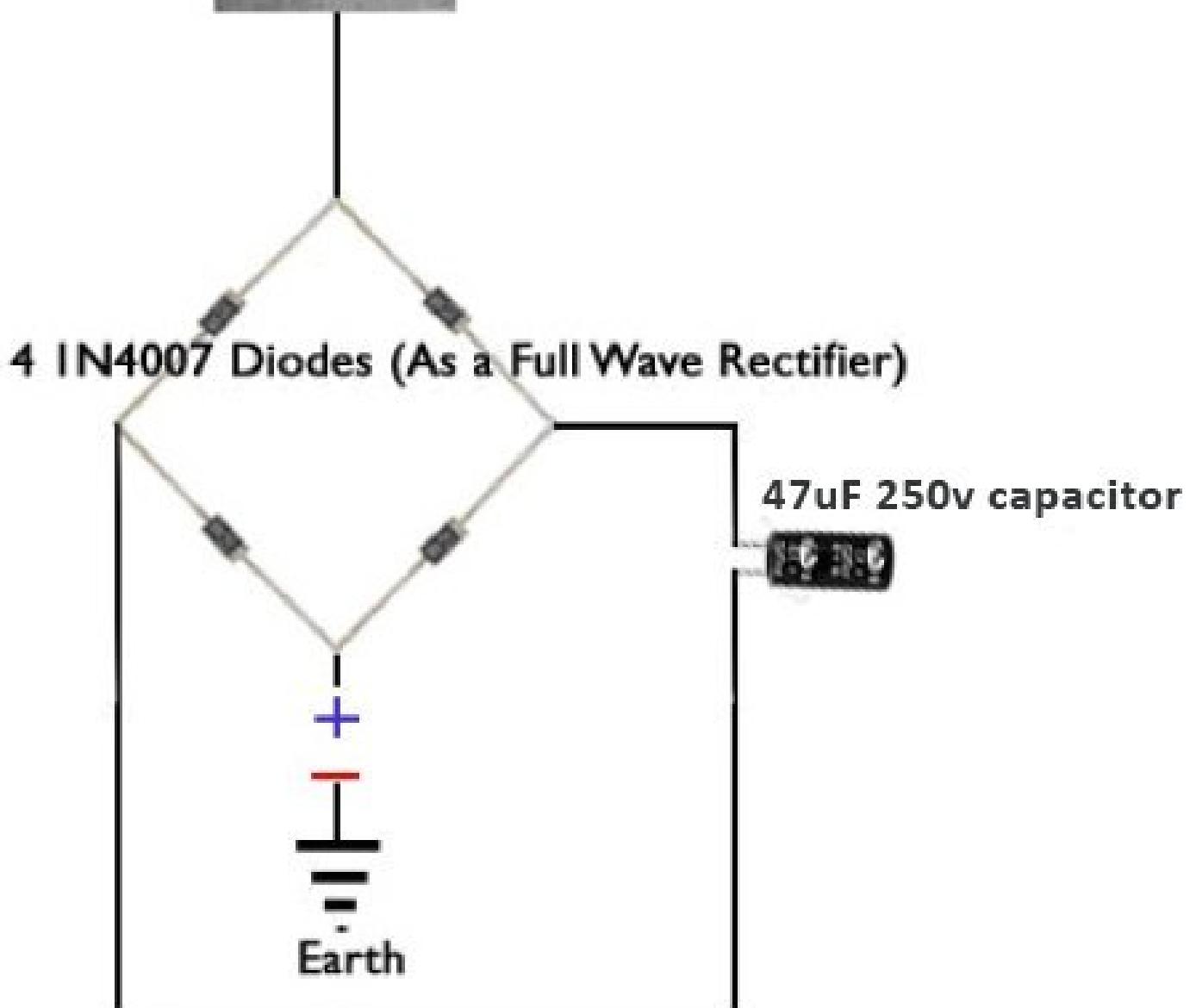
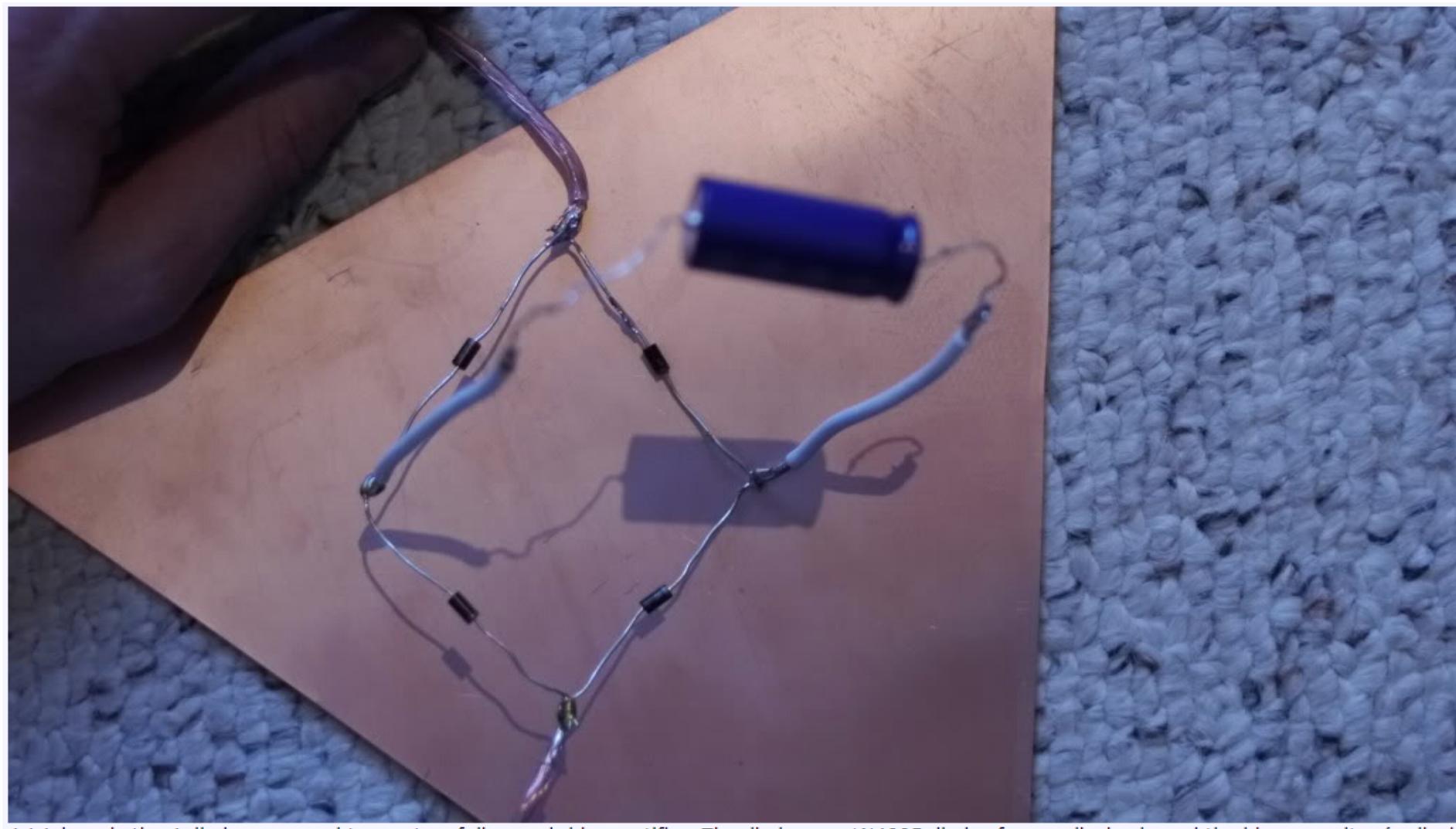
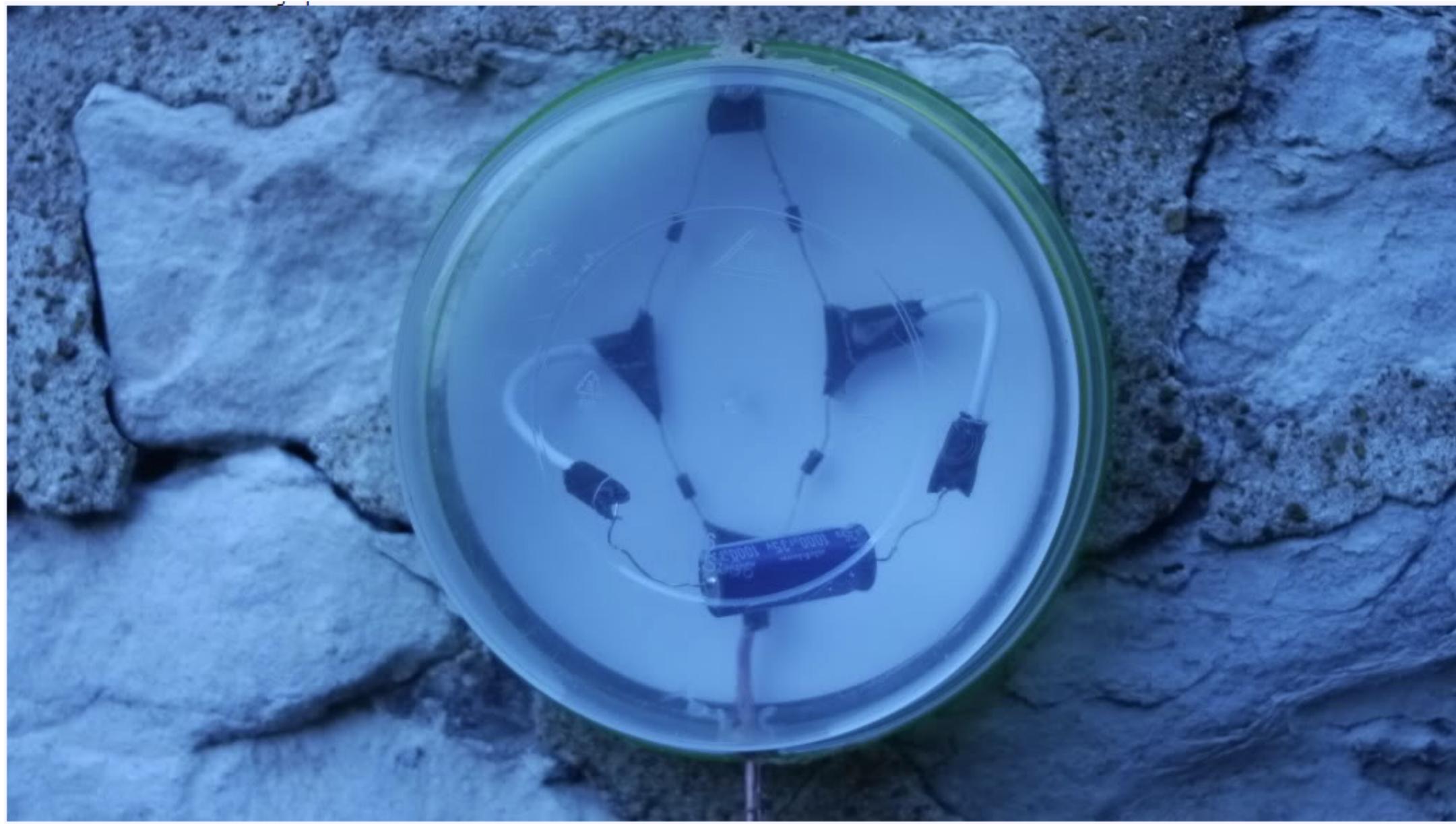


Plate dimensions 58x43cm
Plate insulated with tape
2.5mm solid copper wire
Earth is 1.5m copper pipe





^^^ here is the 4 diodes arranged to create a full wave bridge rectifier. The diodes are 1N4005 diodes from radioshack, and the blue capacitor (radioshack) is 35Volt 3300uF,

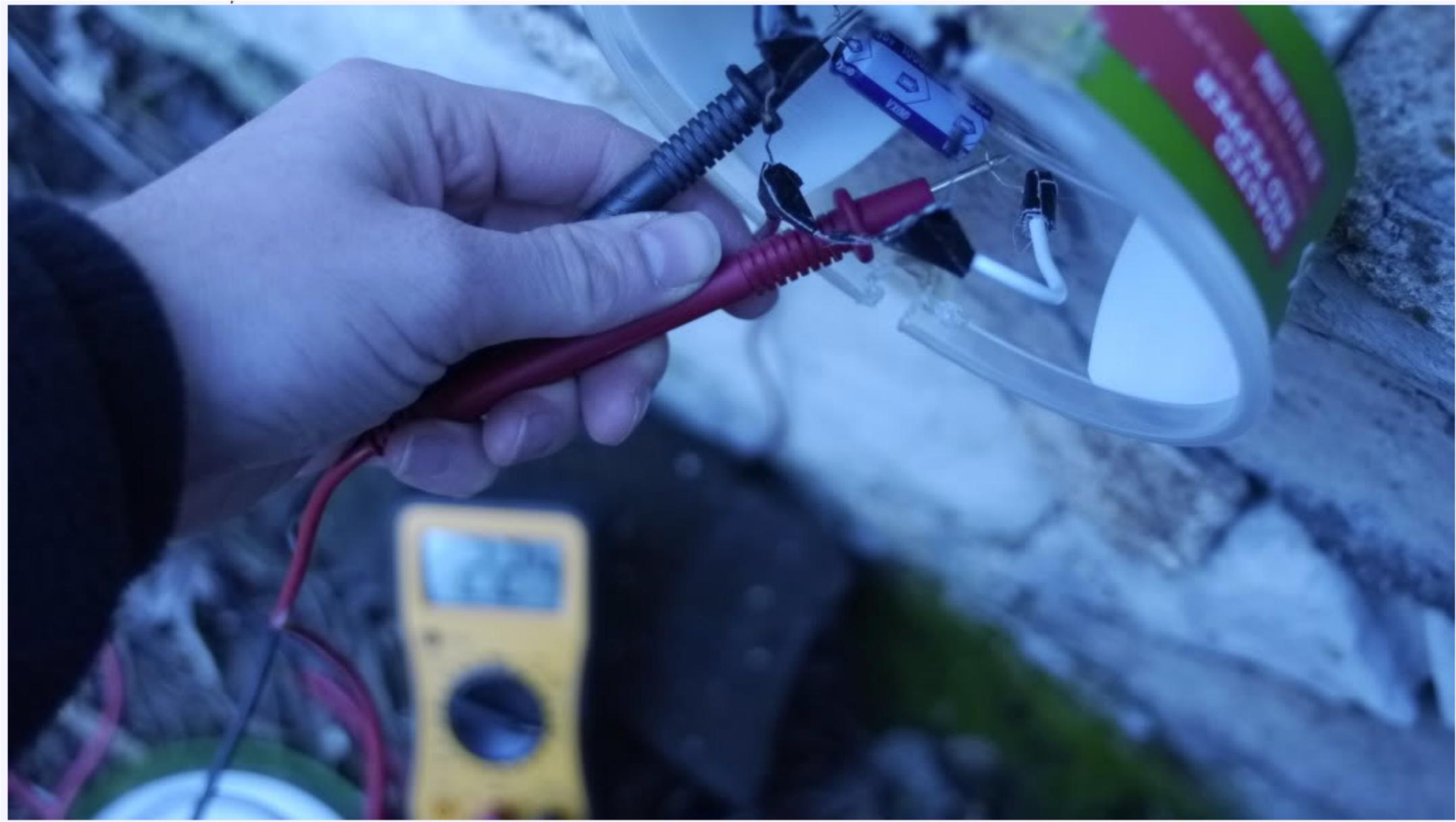


^ view of the circuit

^^^liquid nails to plug the hole, to keep rain out



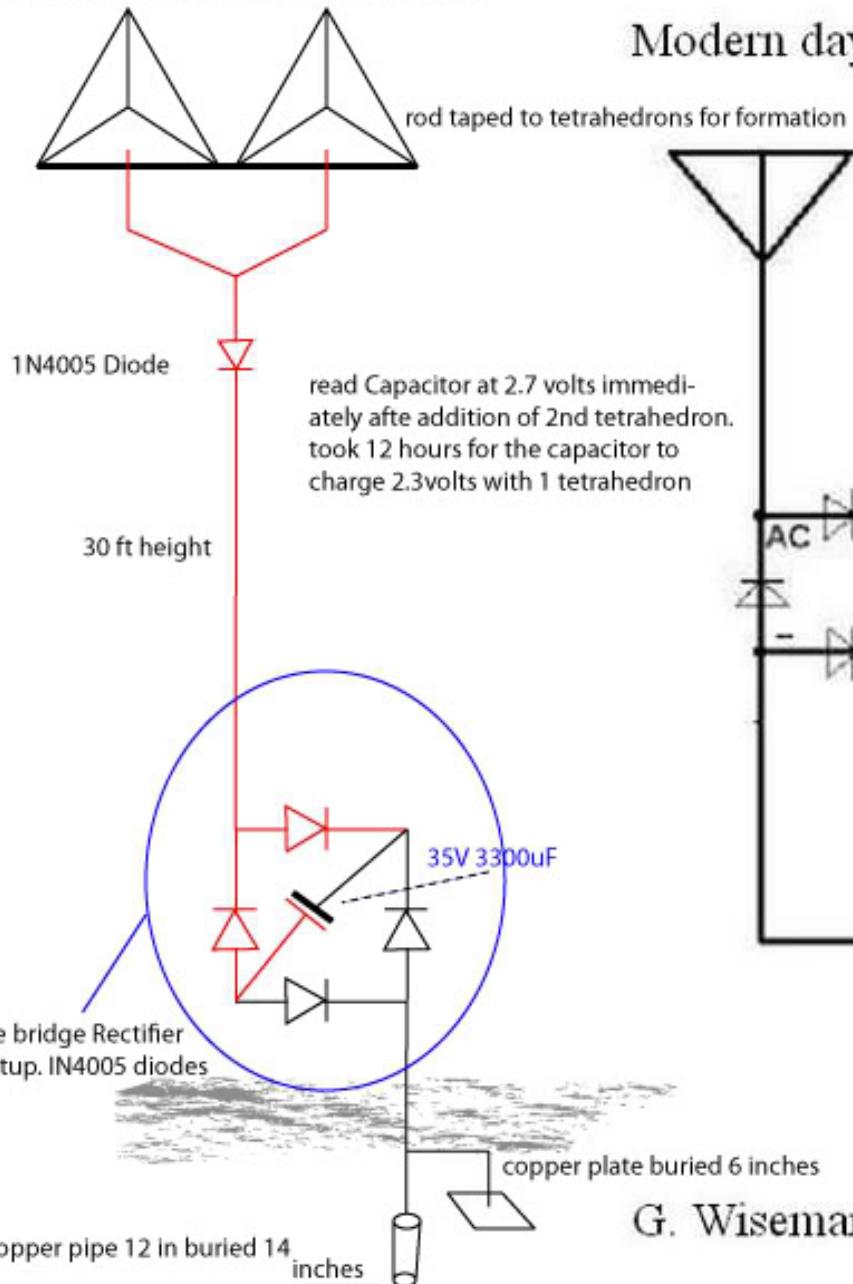
^^^view of the circuit , lid off



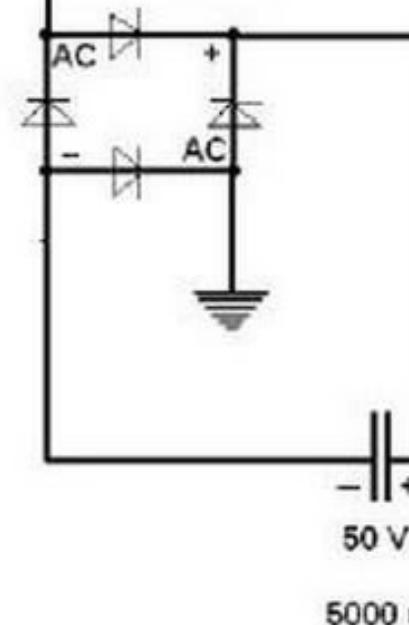
^^^^ testing the cap 2.25volts (now at 2.81volts) with 3 antennas

I made a radiant energy antenna for my 1st Free Energy project, and with LOTS of help and knowledge sharing fro have 3 antennas and 2 grounds and have 2.81 volts in my cap. Somethings better than nothing😊 heres some pics

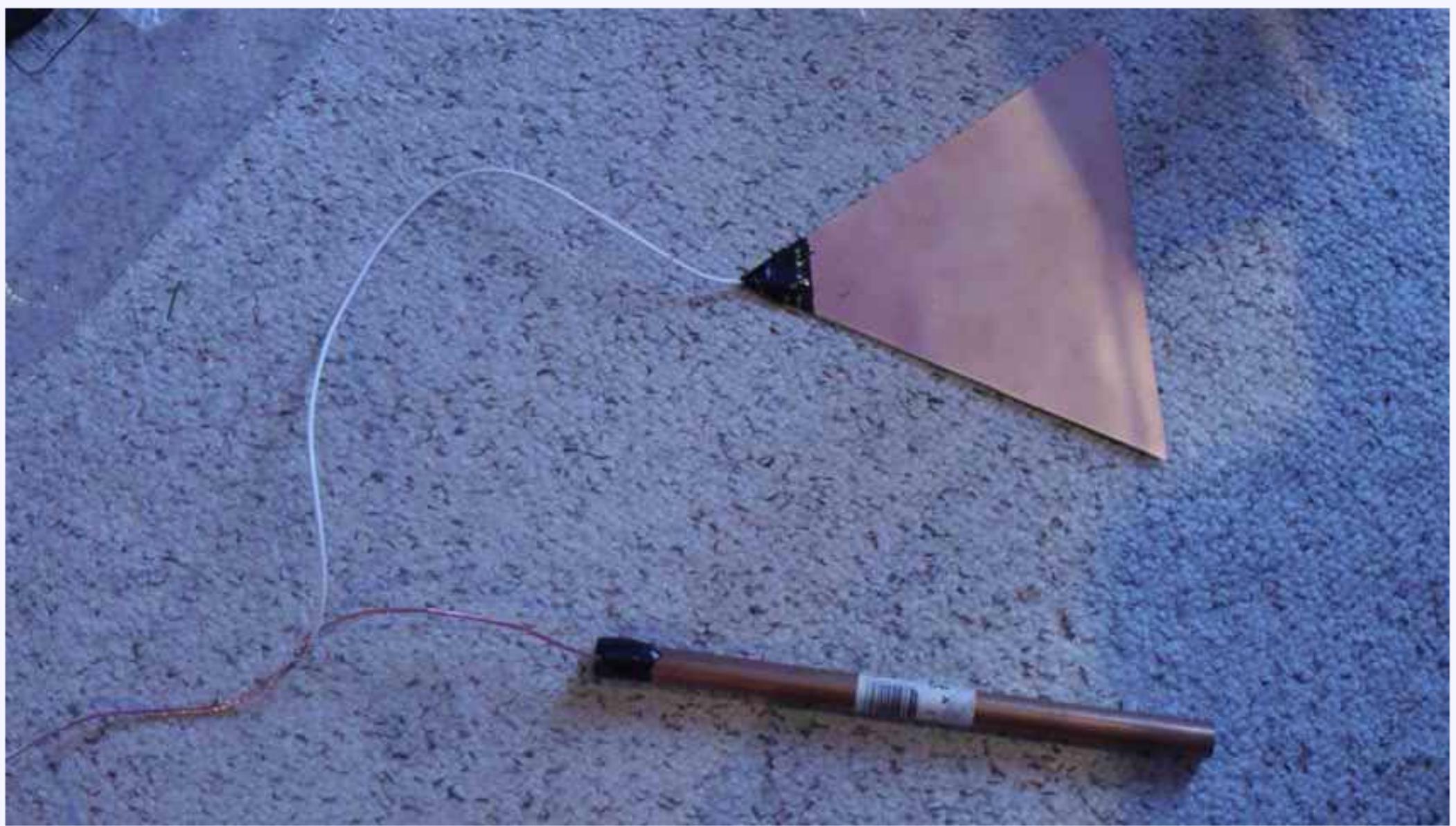
Foam tetrahedrons covered in aluminum foil,
then covered in quartz sand, then saran wrap



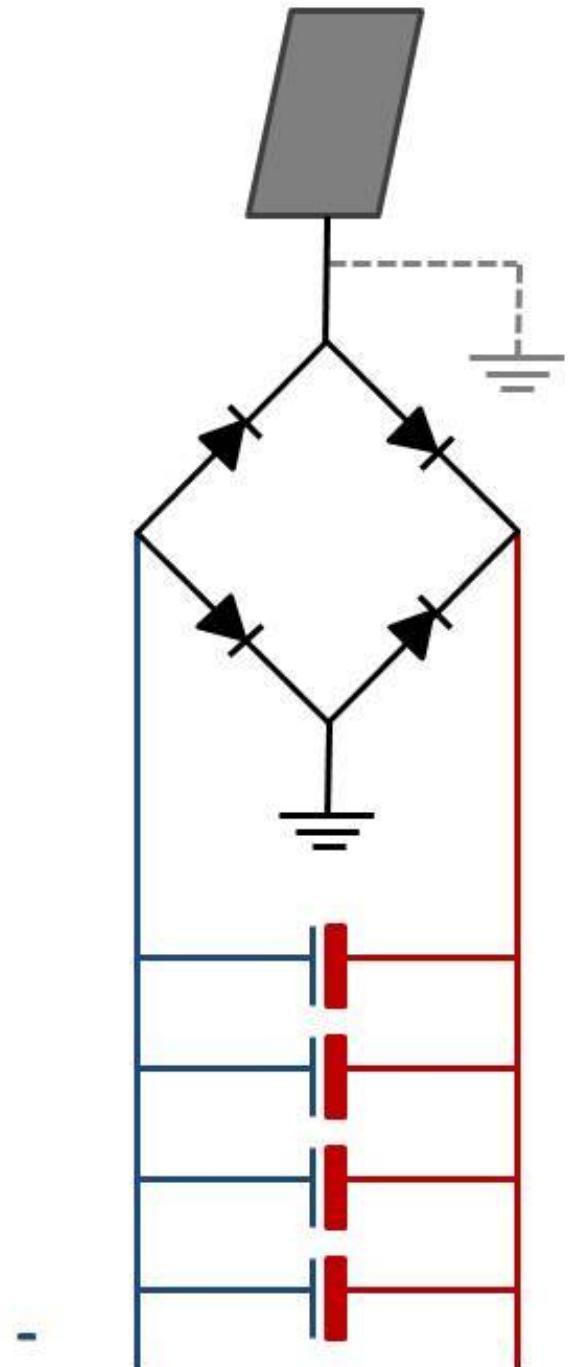
Modern day Radiant Energy Receiver



G. Wiseman type radiant energy converter.



^^^^these are the pieces of copper that gets buried in the ground they supply the (-) of electricity



Insulated, polished aluminium plate high up in air

An extra direct earth connection might help

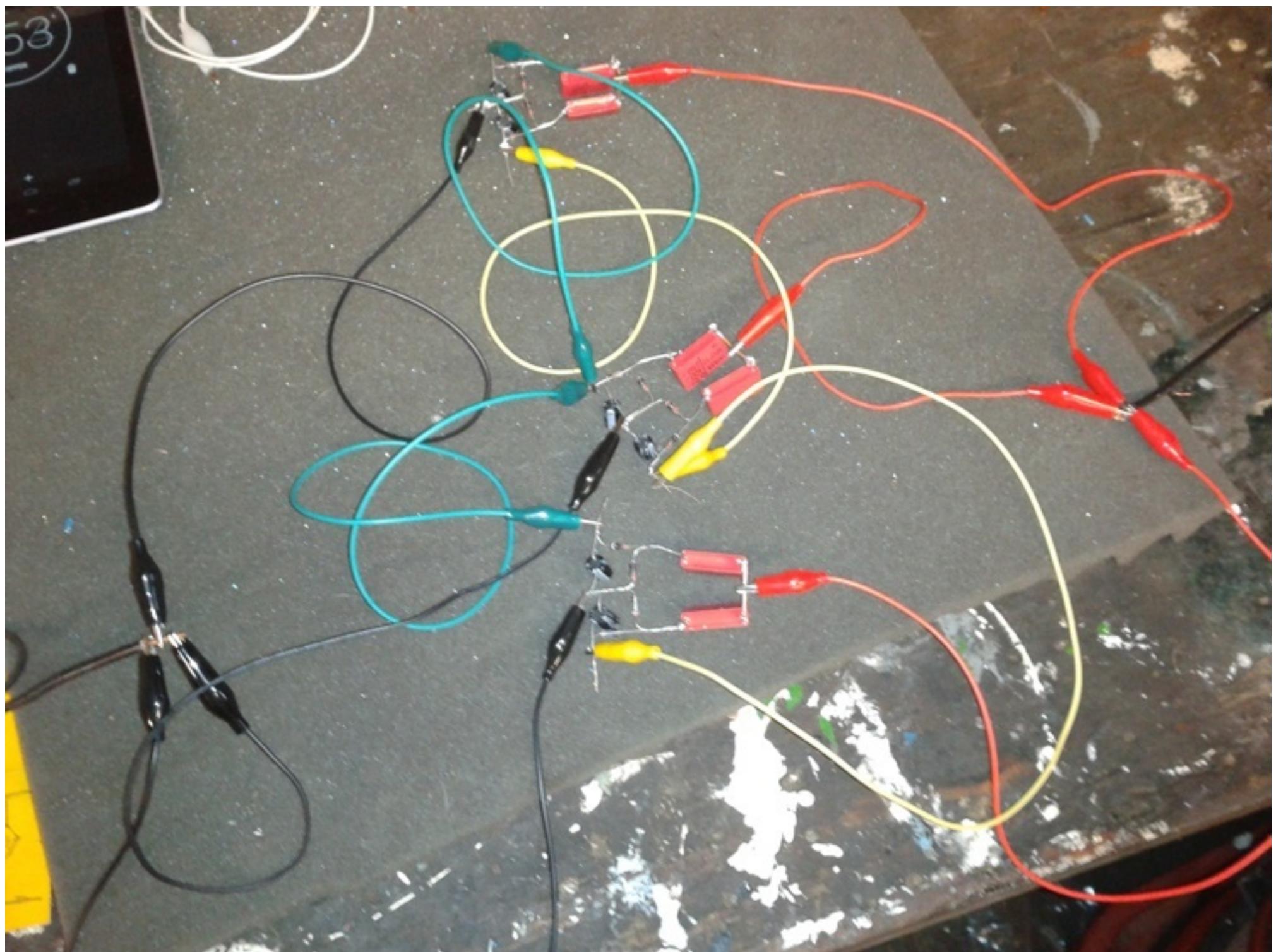
1N34a germanium diodes as full-wave bridge rectifier

4mm high load single core copper wire

Earth is copper pipe 2 metres deep in moist soil

100uF 50V electrolytic capacitors in parallel





2. Insert metal electrodes and attach multimeter leads [copper (+), aluminum (-)] For measuring direct current voltage: set multimeter function switch to "DCV: 20" take a reading in volts DC. for measuring direct current: set multimeter function switch to "DCA: 20m" take a reading in millamps (mA) DC.

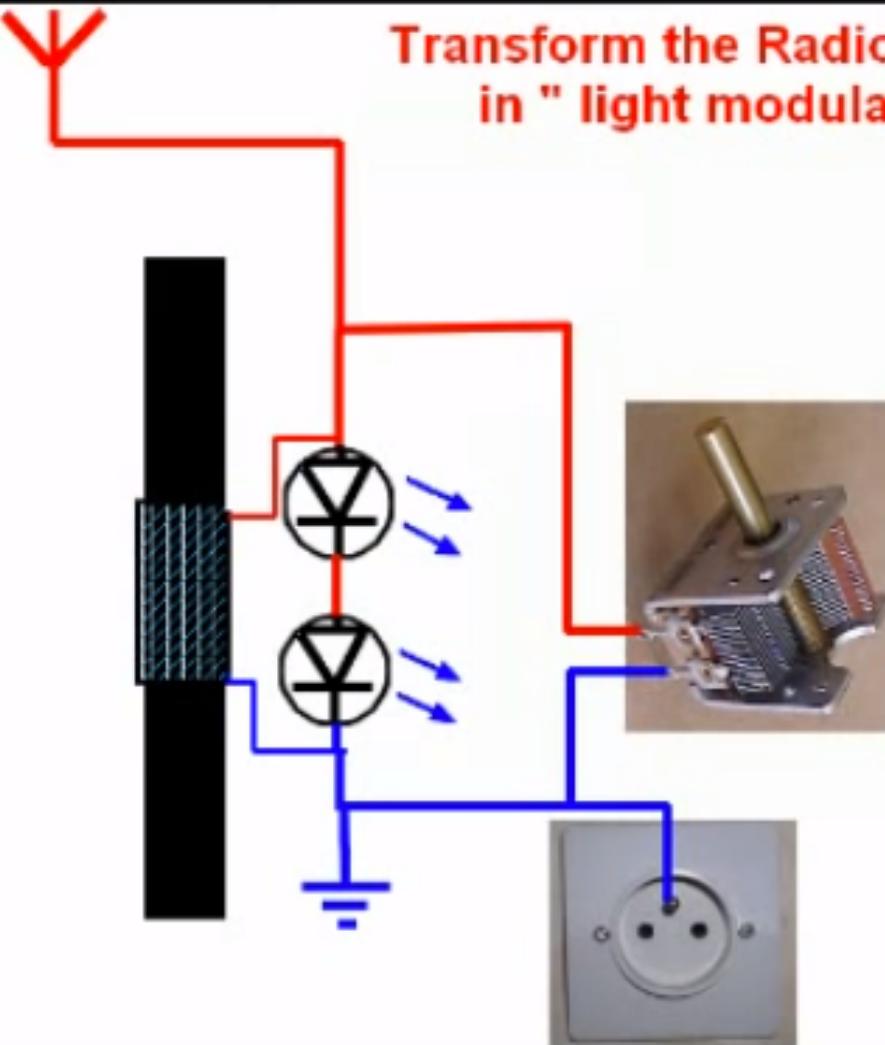
Lawn battery (summer). INSET: Marsh mud battery. (Circles show position of electrodes.)

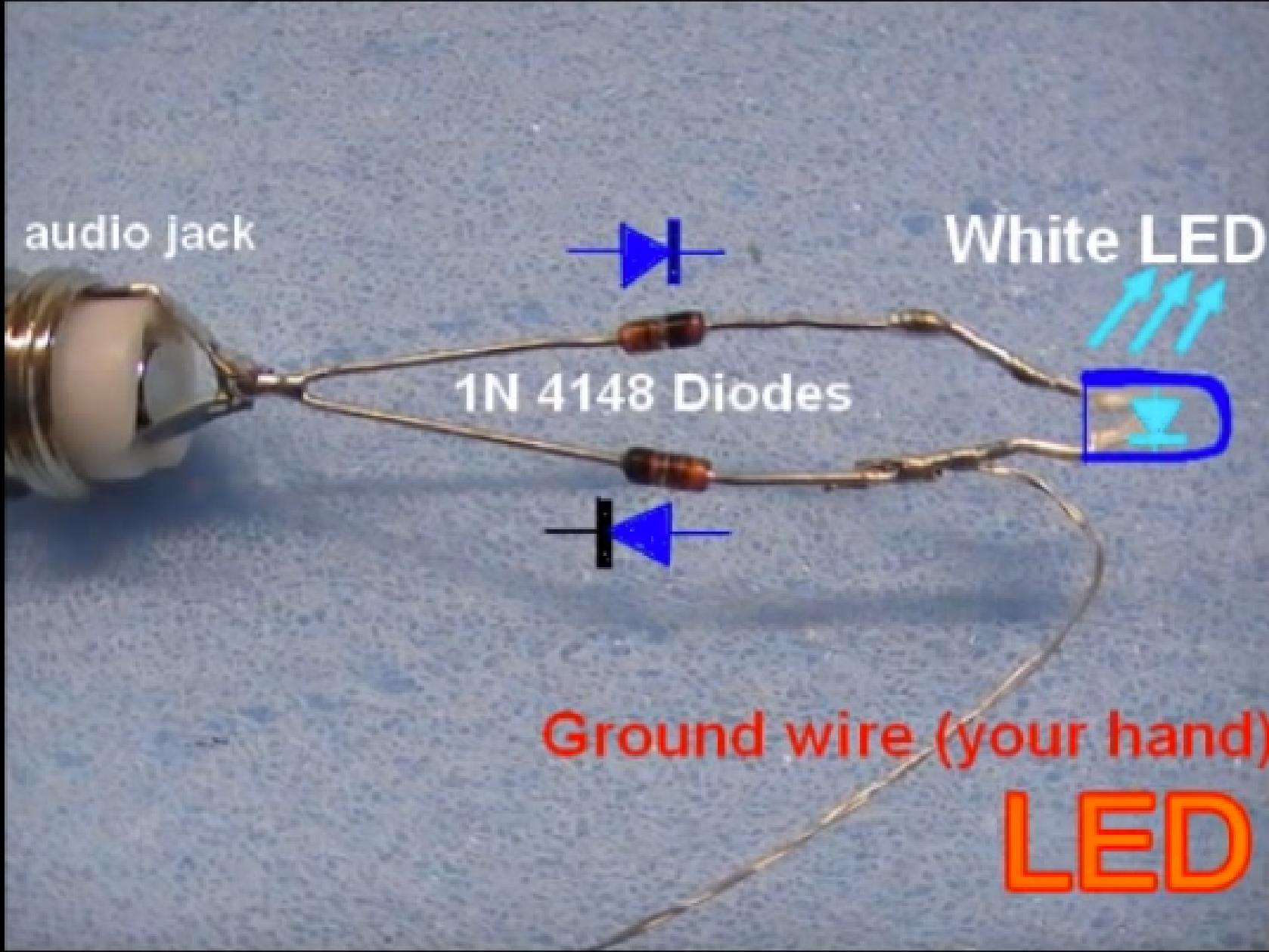
Calculating Earth Battery Power ($W = I * V$)

EXAMPLE: A lawn battery in late summer (little rain) produces a 0.65V, 0.2mA current. A battery power calculation of 0.00013W (0.13mW).



Transform the Radio waves
in " light modulated "

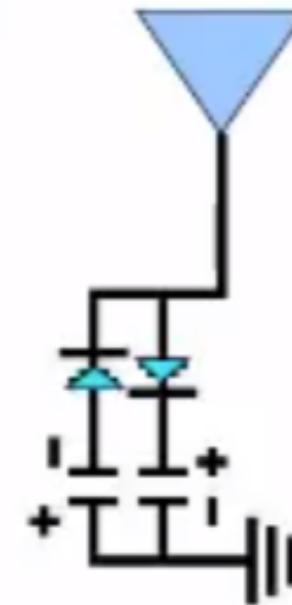
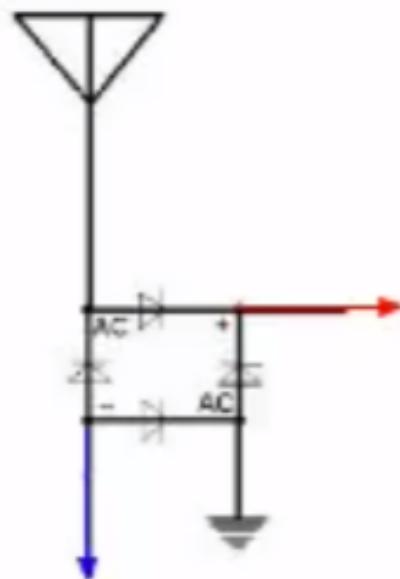
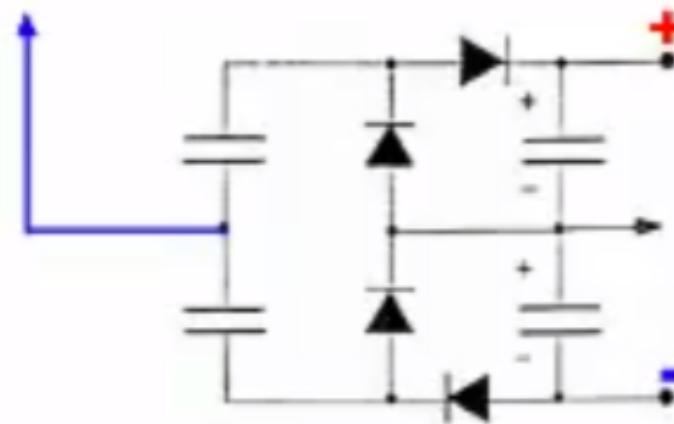






LED HF detector system

circuits used on LC "RadioWaves"

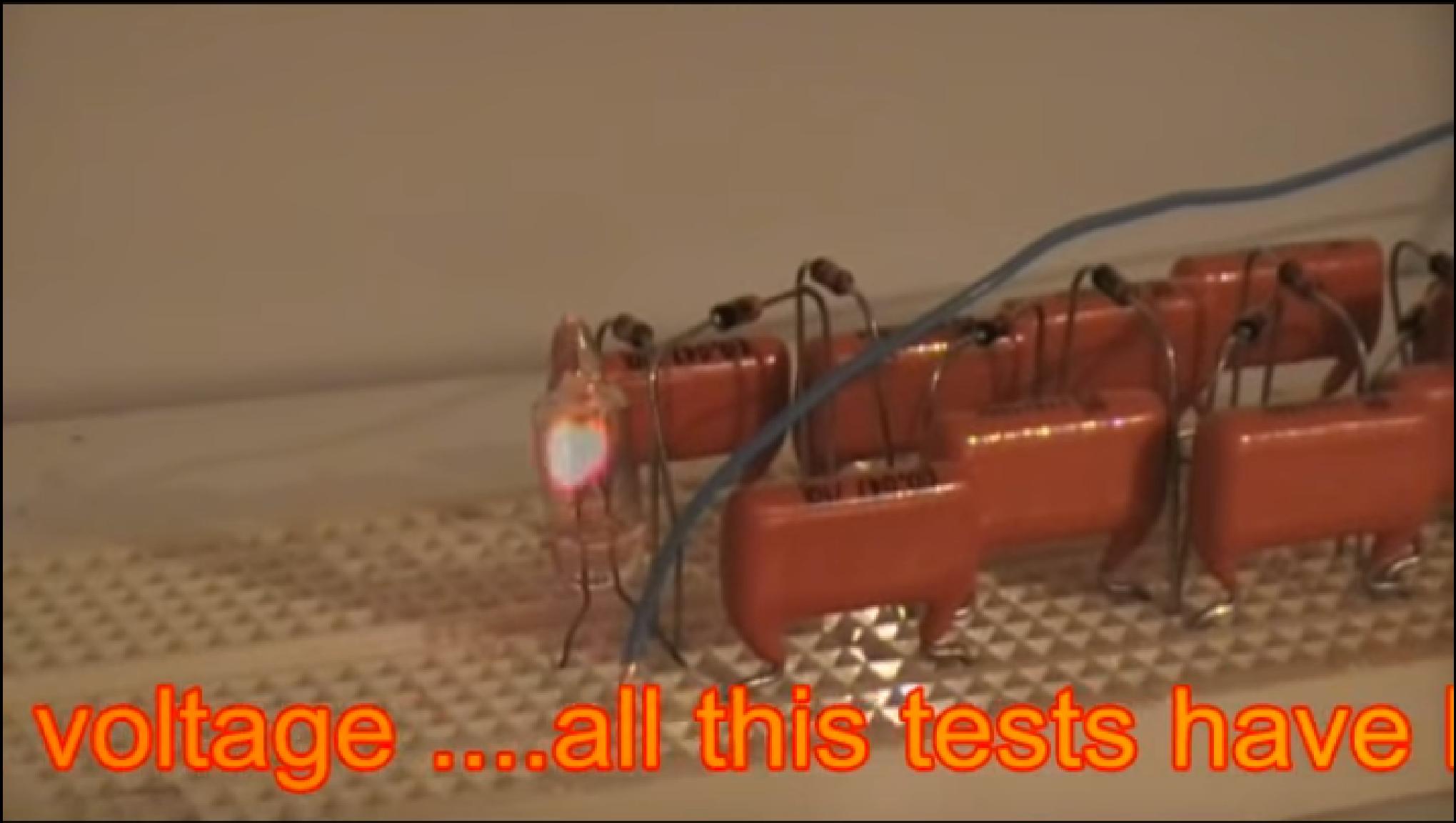




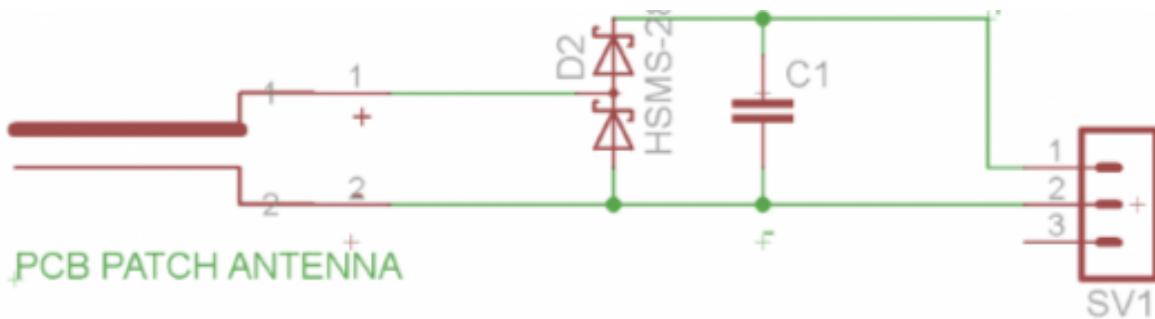
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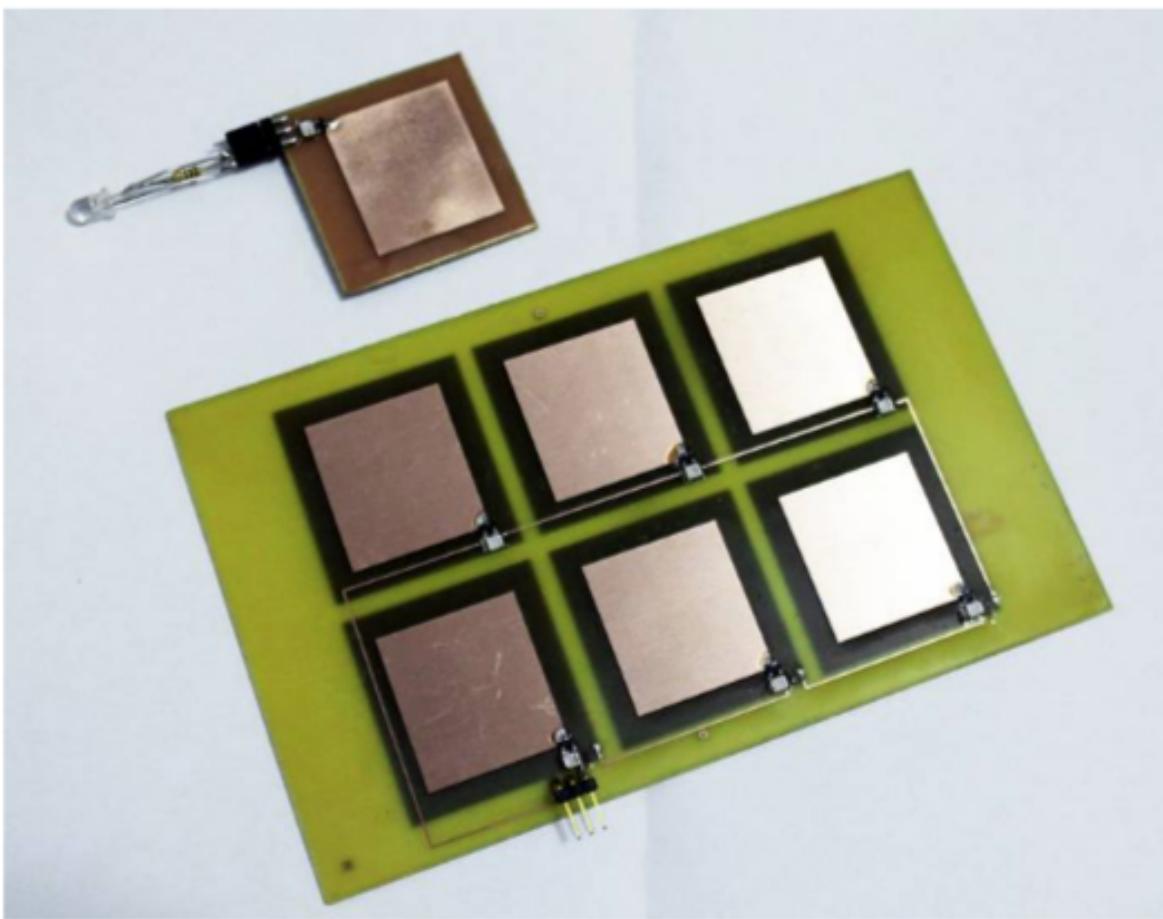
electricity from radiowaves 3



voltageall this tests have !



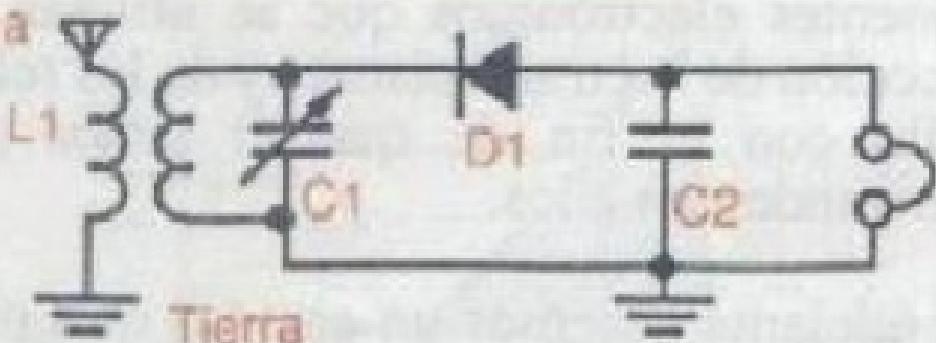
Arrays can be built by connecting in series like regular batteries large numbers of single-element harvesters. These have the advantage that they have a larger effective area and can harvest greater amounts of energy. Pictured below is such an array, near a single element harvester.



We tested the array around a regular wireless router and managed to harvest a few hundred microwatts of power from the ongoing wireless traffic. While this might not seem much, it was enough to light an LED diode. Given more time, we could have adapted this harvester to continuously trickle-charge a supercapacitor. That would have given us enough energy to power in bursts a wireless sensor node like the one we used for light intensity measurements.

Radio de galena

Antena



Bobina

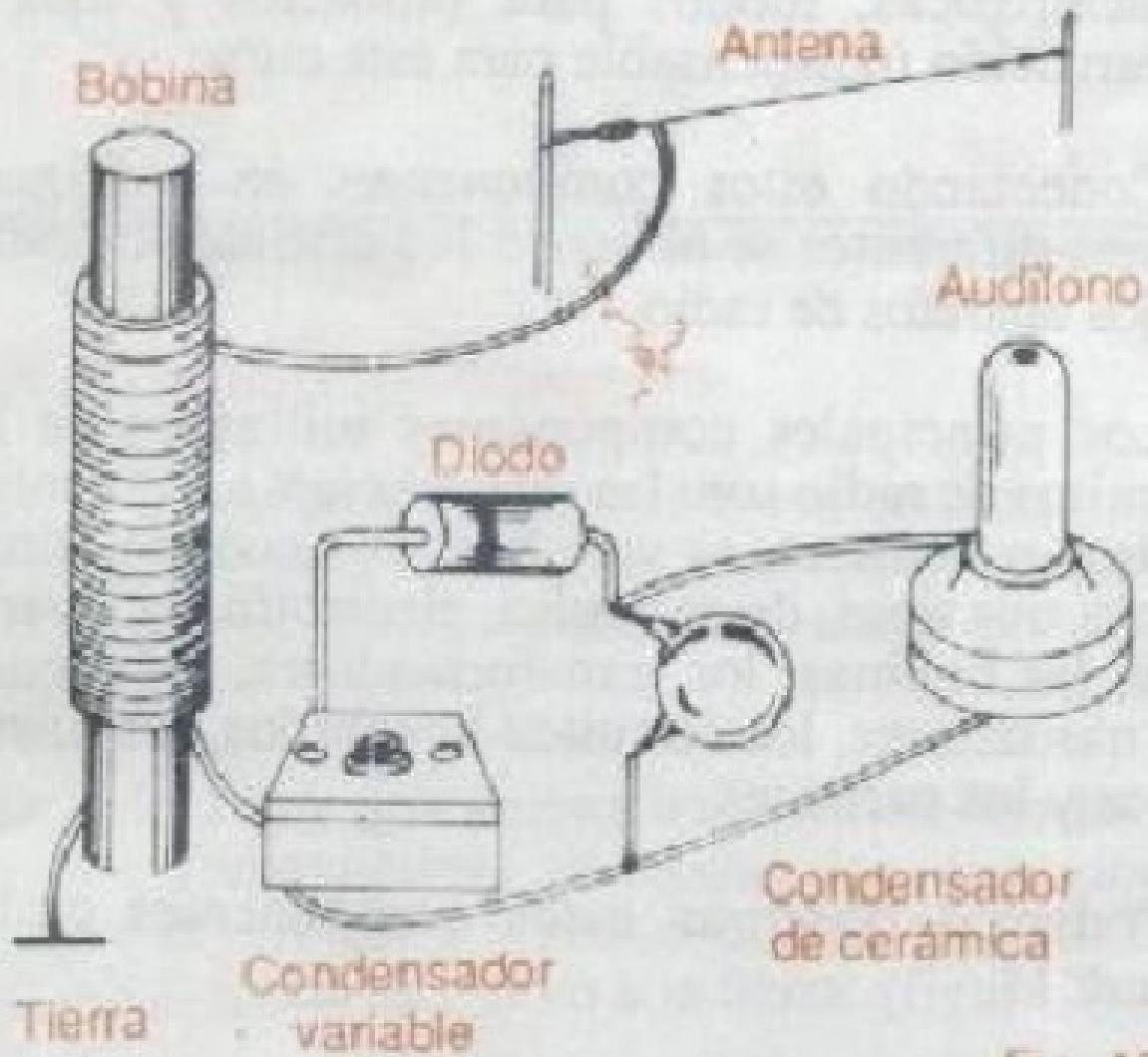
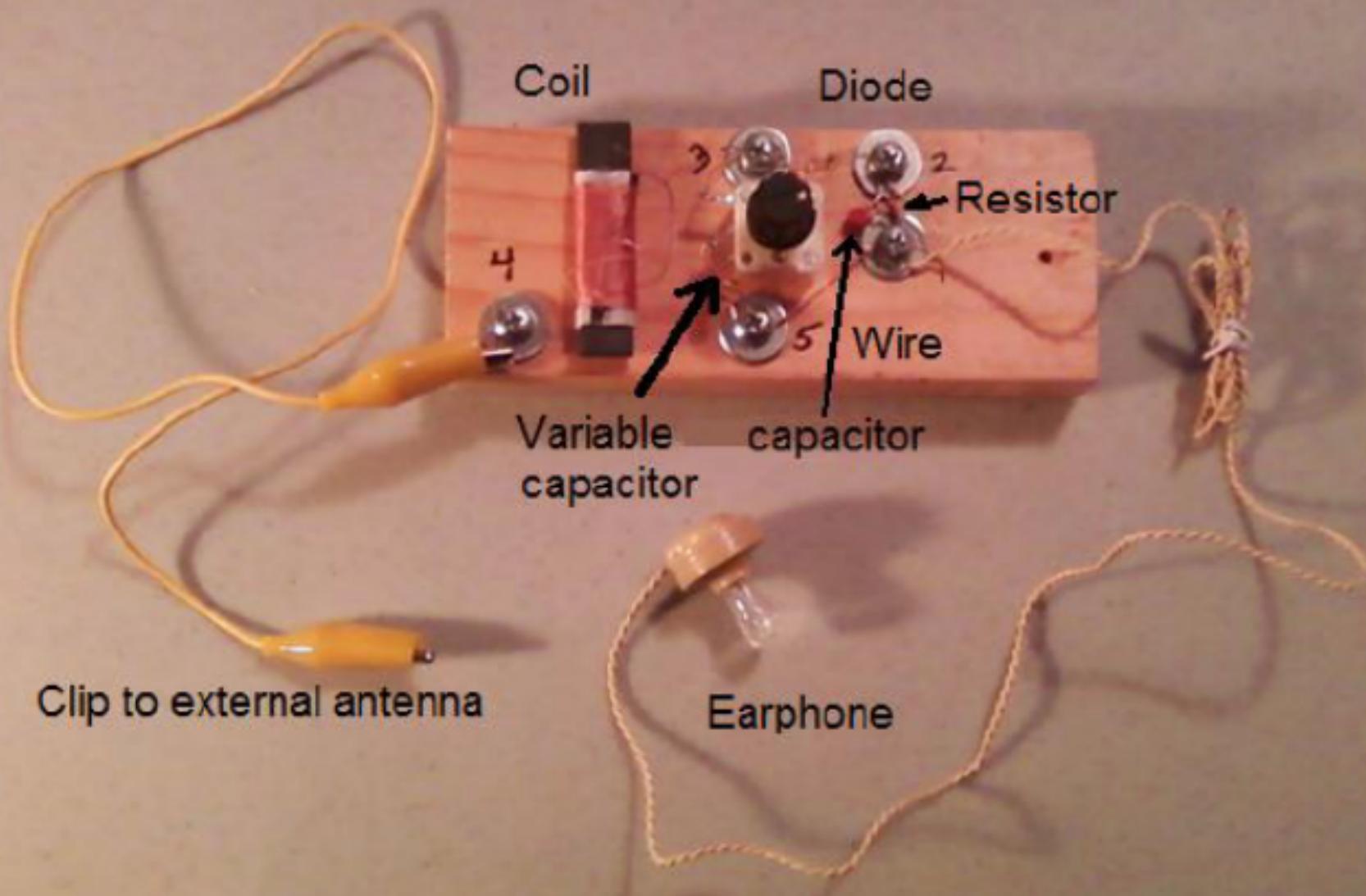
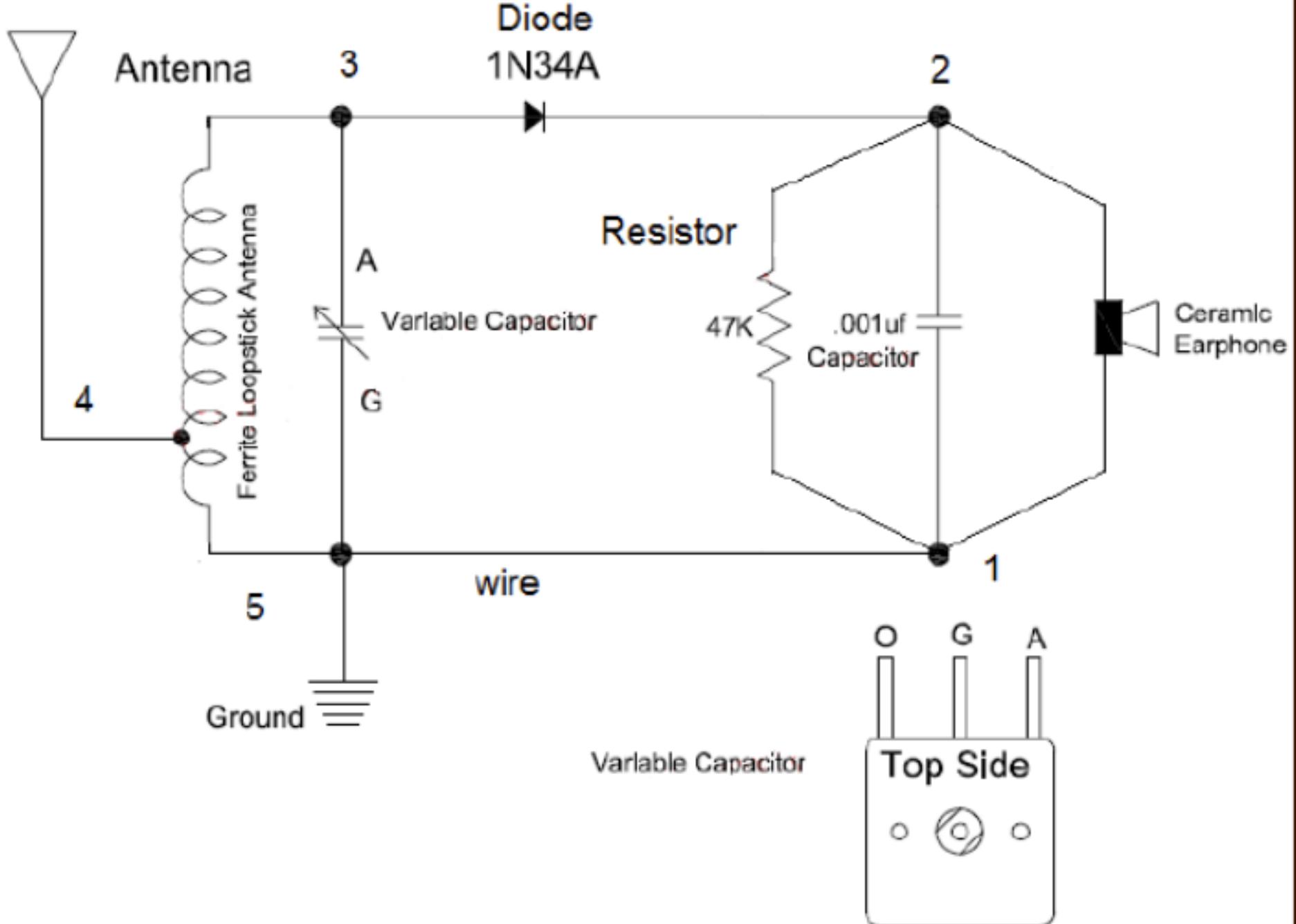


Fig. 12





[So]

<http://www.angelfire.com/electronic2/index1/DmCrystalSet.html>]

7. 555 Timer Projects

In this section we will make :

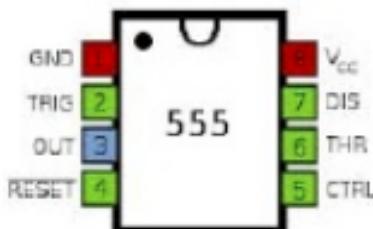
7.1 4 Key Piano	7.7 Knight Rider
7.2 Light sensitive music circuit	7.8 Cricket Game
7.3 Light controlled Police Siren	7.9 Multipurpose circuit
7.4 Touch Switch	7.10 Johnson counter
7.5 Timer	
7.6 Continuity Tester	



What is it about ?

555 timer integrated circuit (IC) is a very popular chip used in variety of applications like timer, pulse generation and oscillators. This is a low cost, stable and widely available chip which makes it favorite for hobbyists. The internal components of 555 as shown in figure consists of 2 comparators and a flip flop. All of these components contain 25 transistors and 15 resistors packed in the IC.

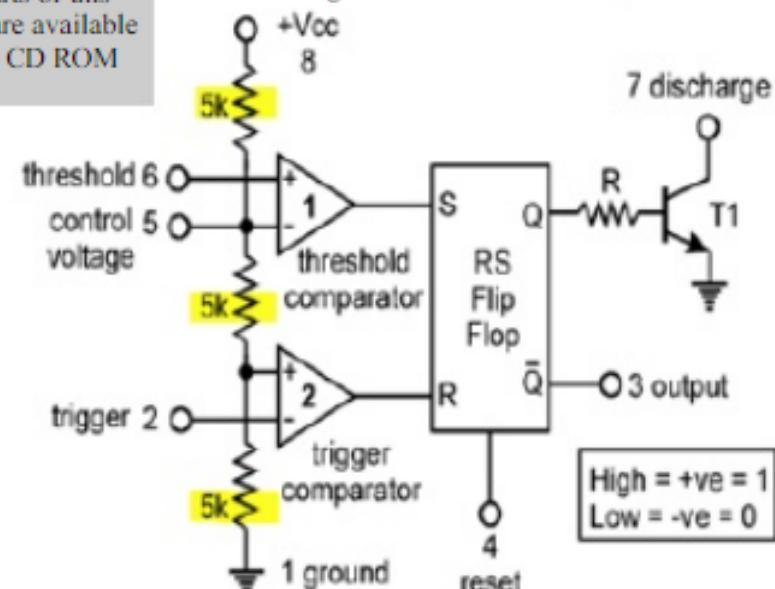
The three highlighted 5k resistors shown in figure are the reason why this IC is named as 555.



Please note the notch near first pin. This is made to identify the first pin of IC.



Internal diagram of 555



Pin	Name	Purpose
1	GND	Ground reference voltage, low level (0 V)
2	TRIG	The OUT pin goes high and a timing interval starts when this input falls below 1/2 of CTRL voltage (which is typically 1/3 of V_{cc} , when CTRL is open).
3	OUT	This output is driven to approximately 1.7V below $+V_{cc}$ or GND.
4	RESET	A timing interval may be reset by driving this input to GND, but the timing does not begin again until RESET rises above approximately 0.7 volts. Overrides TRIG which overrides THR.
5	CTRL	Provides "control" access to the internal voltage divider (by default, 2/3 V_{cc}).
6	THR	The timing (OUT high) interval ends when the voltage at THR is greater than that at CTRL.
7	DIS	Open collector output which may discharge a capacitor between intervals. In phase with output.
8	V_{cc}	Positive supply voltage, which is usually between 3 and 15 V depending on the variation.

Assuming there is a constant -37dBm power flow entering the energy harvesting antenna. It will take 11.7 days for the RF harvester to collect 0.32 Joules of energy. This does not take into account the reflection which may occur between the antenna and the input of the RF harvester,

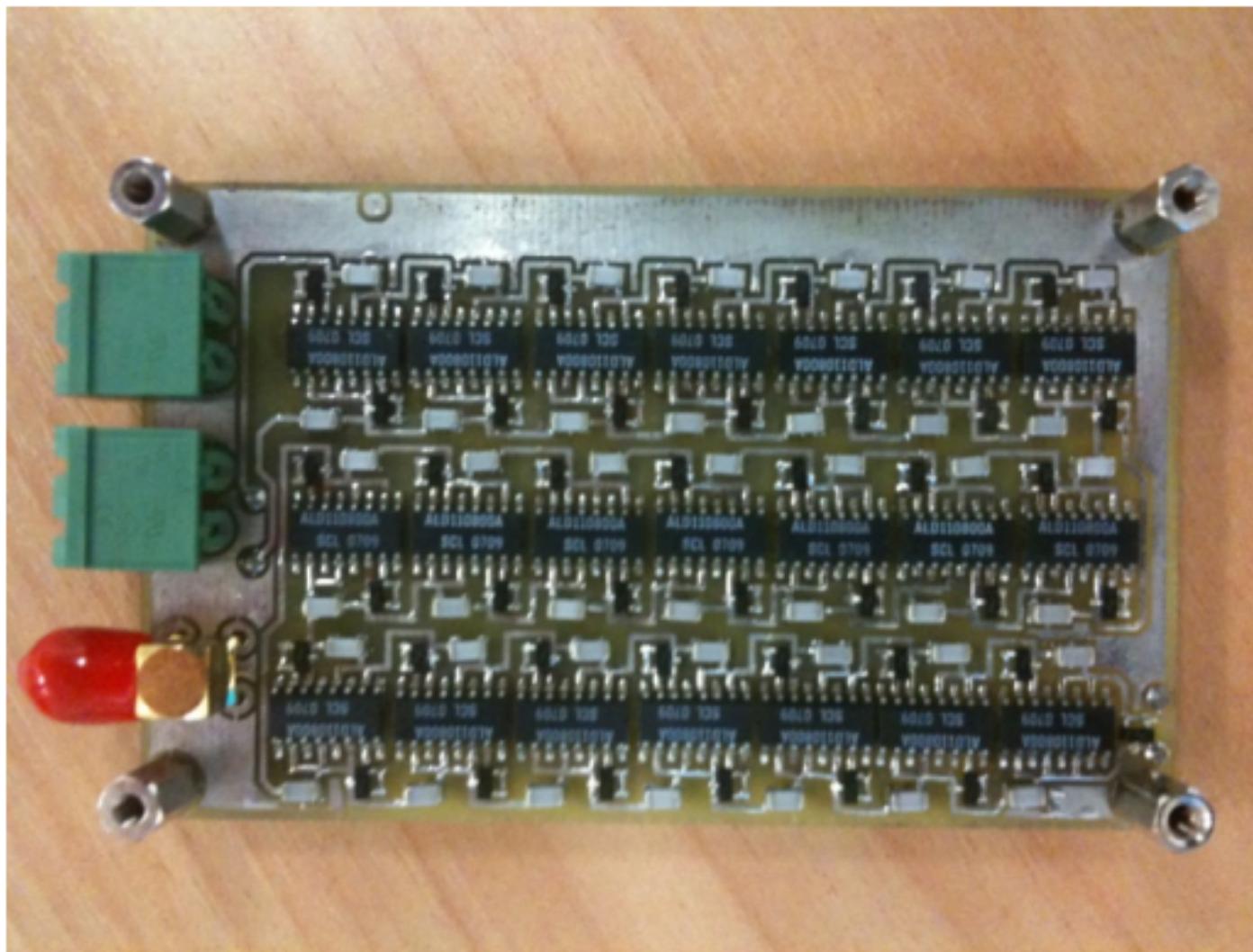


Figure 6: Power harvesting system (top layer)

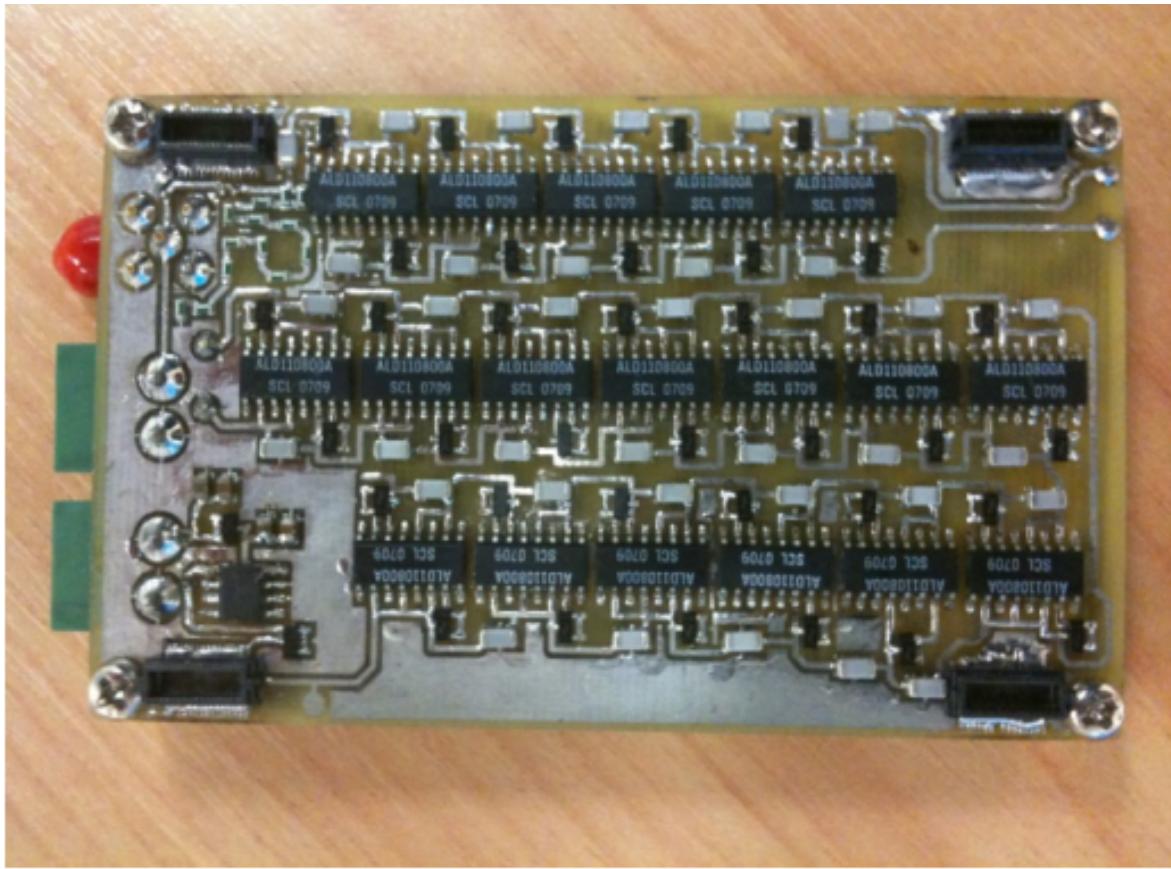
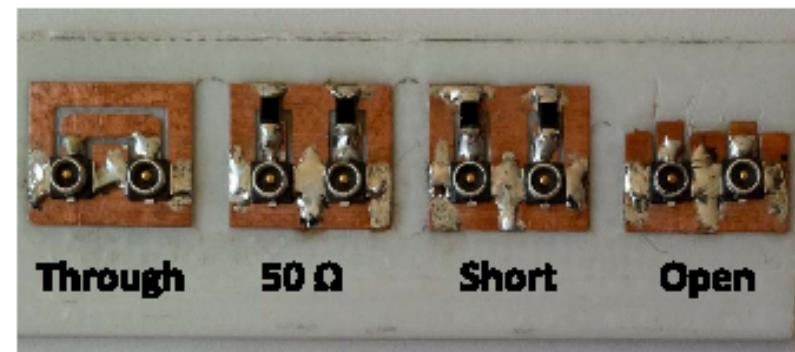


Figure 7: Power harvesting system (bottom layer)

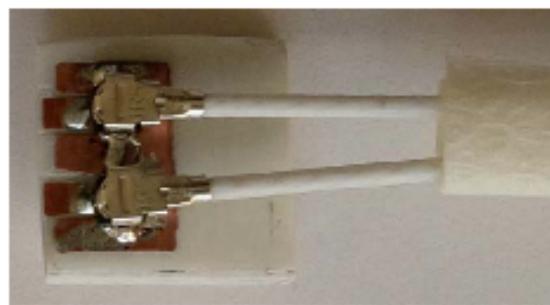
The realistic time the RF energy harvesting circuit will take to collect enough energy for one data transmission will be closer to 20 to 30 days. This is taking into account the reflection coefficient and the fluctuations in power levels. There are still many applications where such a device will be very useful. One such application is in silver-culture. Here circumferential sensors are used to measure the growth of trees. Since the trees grow very slowly the time between measurements is usually a month or more. By powering these sensors from an ambient source, it eliminates the need to ever change the batteries. For applications requiring faster charge rates, it is possible to combine



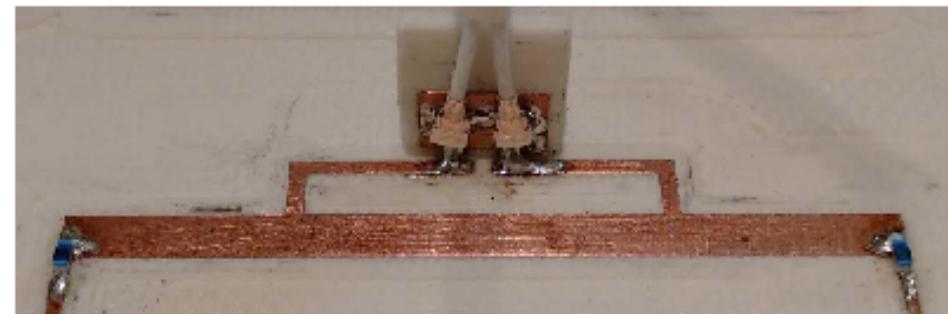
(a)



(b)



(c)



(d)

Fig. 5 Differential input impedance measurement setup (a) Custom

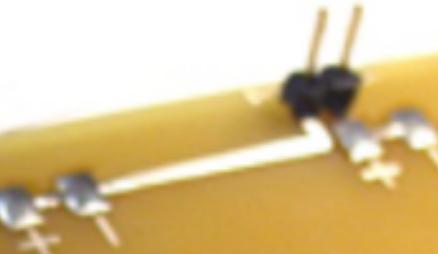
Fig. 5. Differential input impedance measurement setup. (a) Custom calibration kit. (b) W.FL to SMA adaptor. (c) Calibrated reference plane of the logical differential port. (d) Input impedance measurement of the T-match dipole antenna.

K-State/Peregrine
Micro-power Radio Transmitter
Demo Board Rev 1.0

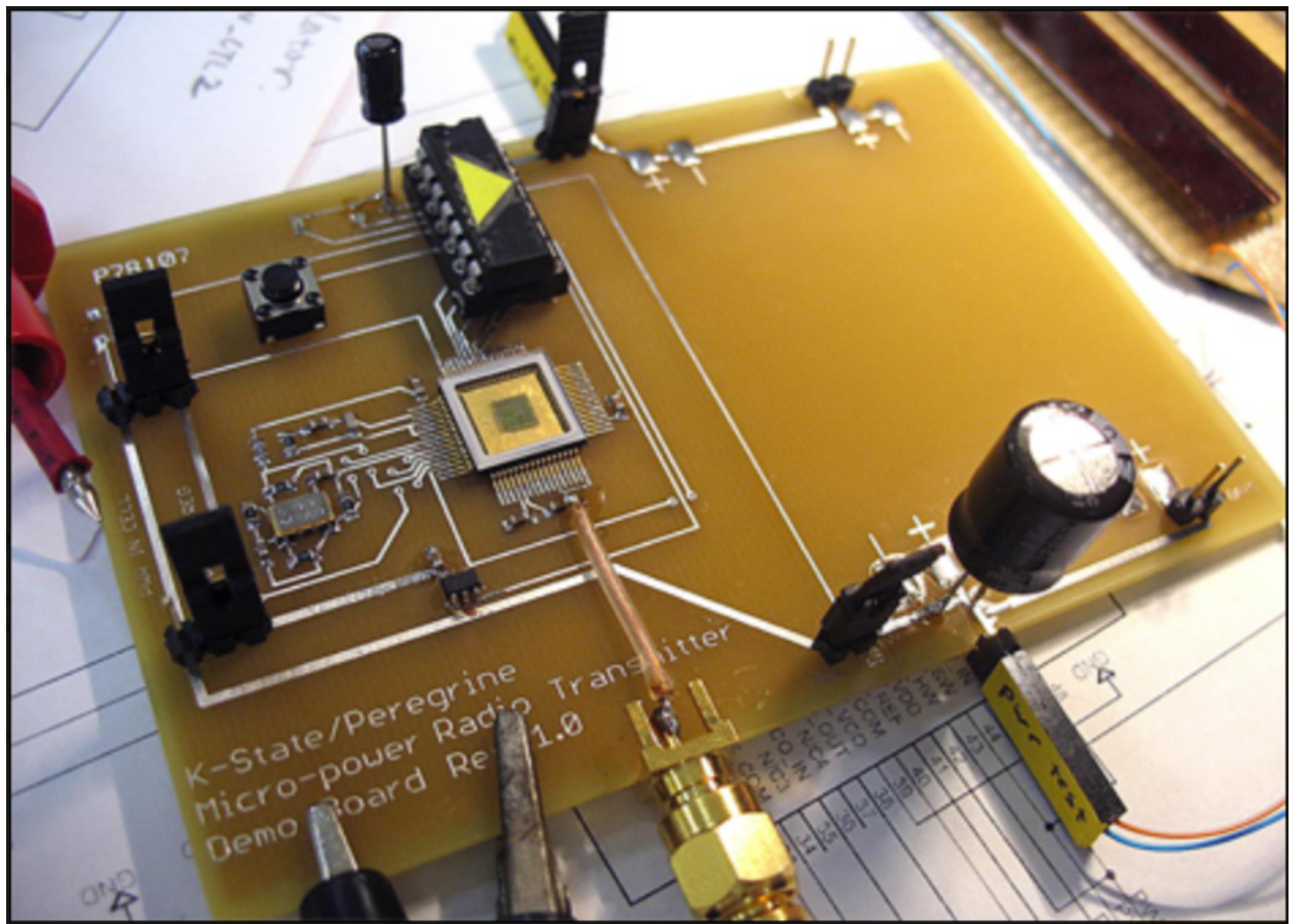
P78107

100

100



ON R



As you can see in figures 3 and 4, there is not much to this 120VAC to 12VDC adaptor.

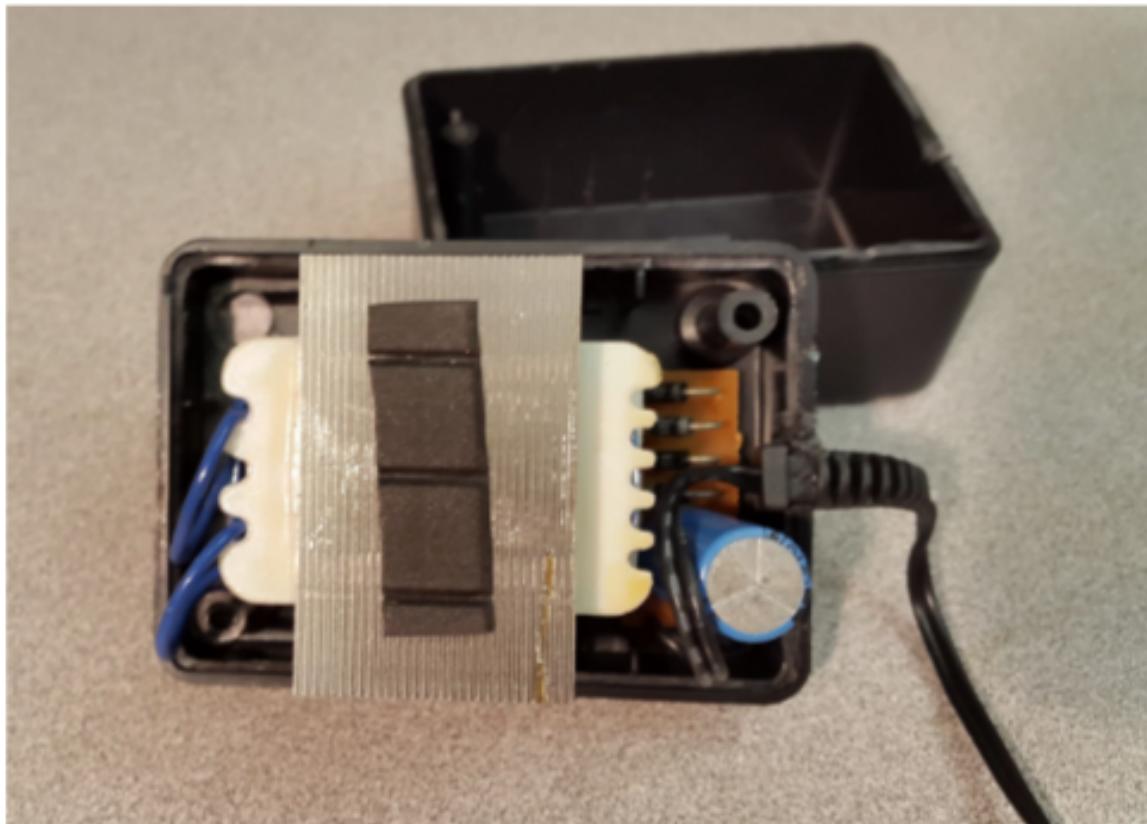


Figure 3. Top View of the Inside of the AC Adaptor



Figure 4. AC Adaptor Components Spread Out

Transformer

Figure 5 shows the same adaptor seen from the side. The blue wires on the right are the inputs from the two-prong wall connection and they connect directly to the primary of the transformer. The output from the secondary can be seen at the lower left of the transformer as two small copper wires. The purpose of the transformer is to step the AC voltage down from the $120V_{RMS}$ from the wall outlet to a voltage that is closer to the required DC voltage.

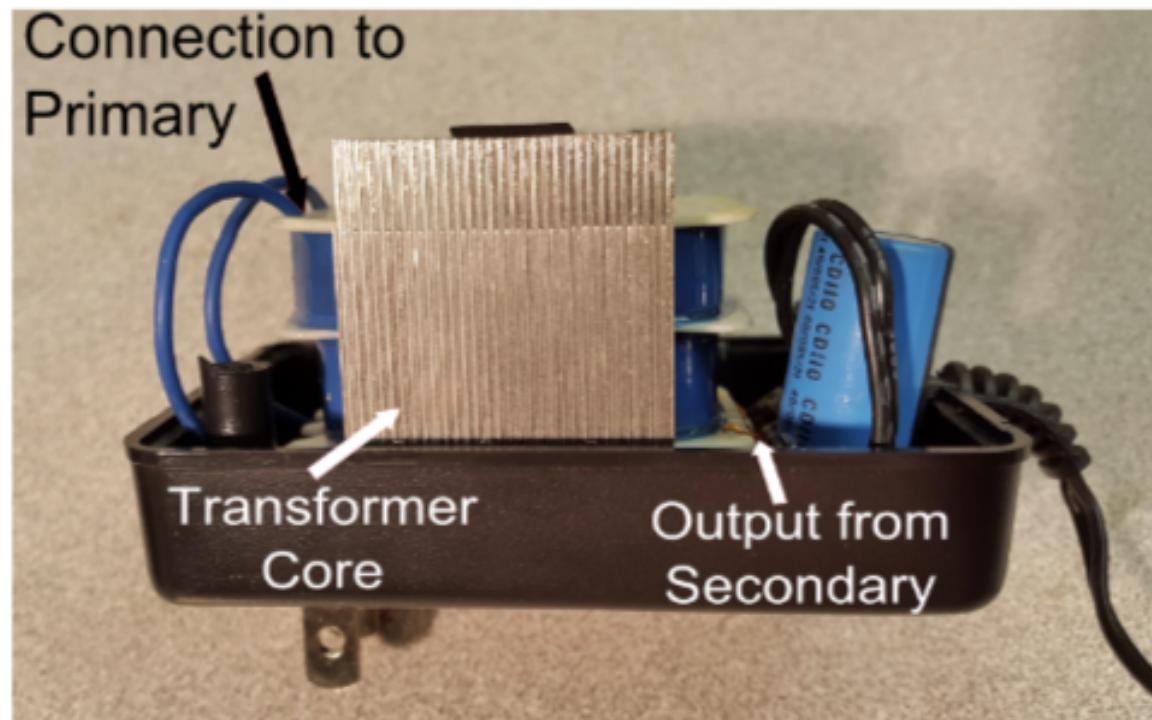


Figure 5. Side View of AC Adaptor with Transformer Labeled

If you ignore all of the non-ideal properties of transformers, they are very simple devices. The general idea is that there are two (usually large) coils of wire that are electrically isolated, but magnetically coupled together. The input side of the transformer is called the primary and the output side is called the secondary. Alternating current passes through the primary coil which creates an alternating magnetic flux in the transformer core. This alternating magnetic flux in turn induces a voltage in the coils of the secondary. The ratio of the number of loops in the primary coil to the number of loops in the secondary coil is equal to the ratio of the input AC voltage to the output AC voltage. In equation form this relationship is:

The Bridge Rectifier

The next stage in the wall adapter is the bridge rectifier. This device takes the AC output of the transformer and converts it into a DC voltage. It does this using an arrangement of diodes that force the current to pass through the load in one direction only. Figure 8 shows the diodes in the adaptor along with a schematic representation of how the diodes are connected together.

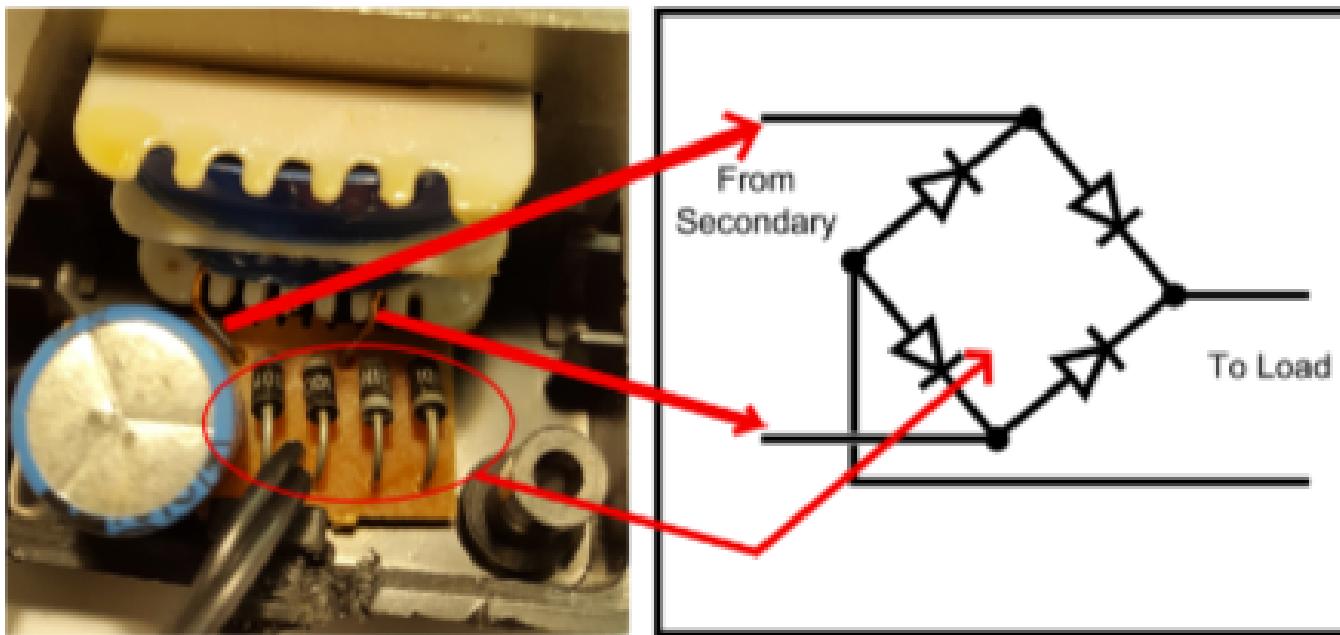


Figure 8. Full Bridge Rectifier Circuit and Schematic

The bridge rectifier in this wall adapter is made of four individual diodes (part number 1N4001), but sometimes the rectifier is a basic integrated circuit with the four diodes manufactured all in one device like in figure 9.

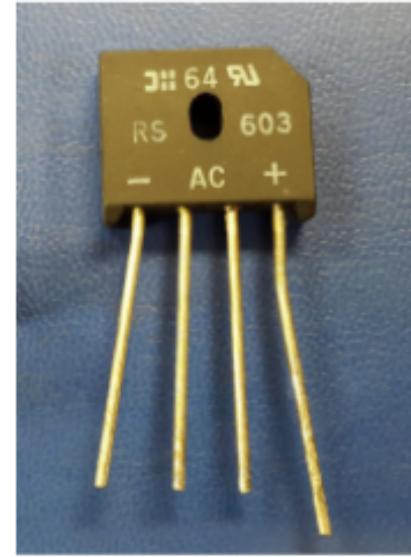


Figure 9. Bridge Rectifier in an IC

The output of the rectifier is only DC in the sense that current to the load is forced in one direction. The voltage is still varying a large amount as can be seen in figure 10. Effectively what the rectifier did was to take the negative portion of the voltage and flip it around to make it positive as shown in the figure below. The voltage still swings between 0V and the peak. Further processing must be done on the voltage to minimize the voltage swing and that is what the next stage does.

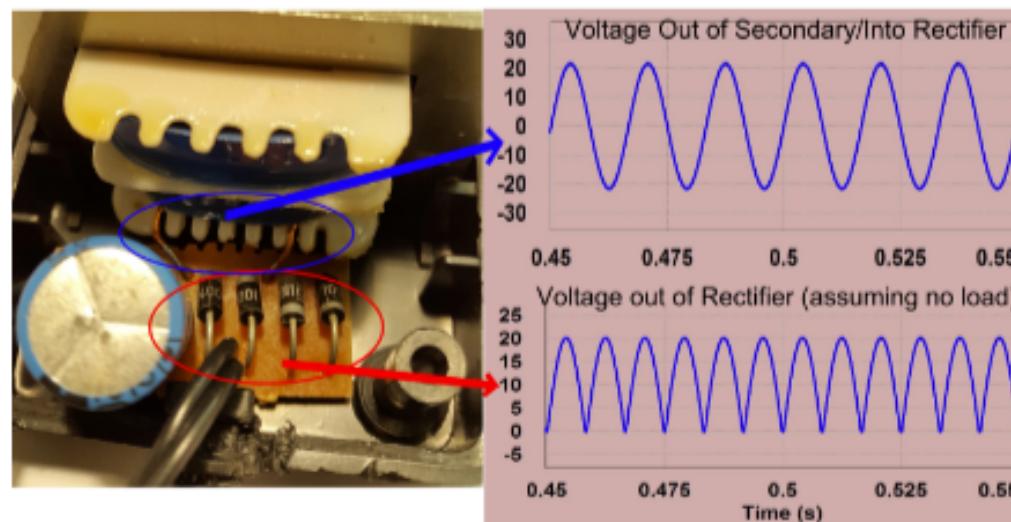


Figure 10. Rectifier Circuit Showing Input and Output Voltages.png

The Capacitor

The next problem to solve is how to take that varying voltage and smooth it out so that the load receives a more or less constant voltage. The main component in this fight against this ripple is the capacitor. The capacitor is the tall blue cylindrical component in figure 11 below:

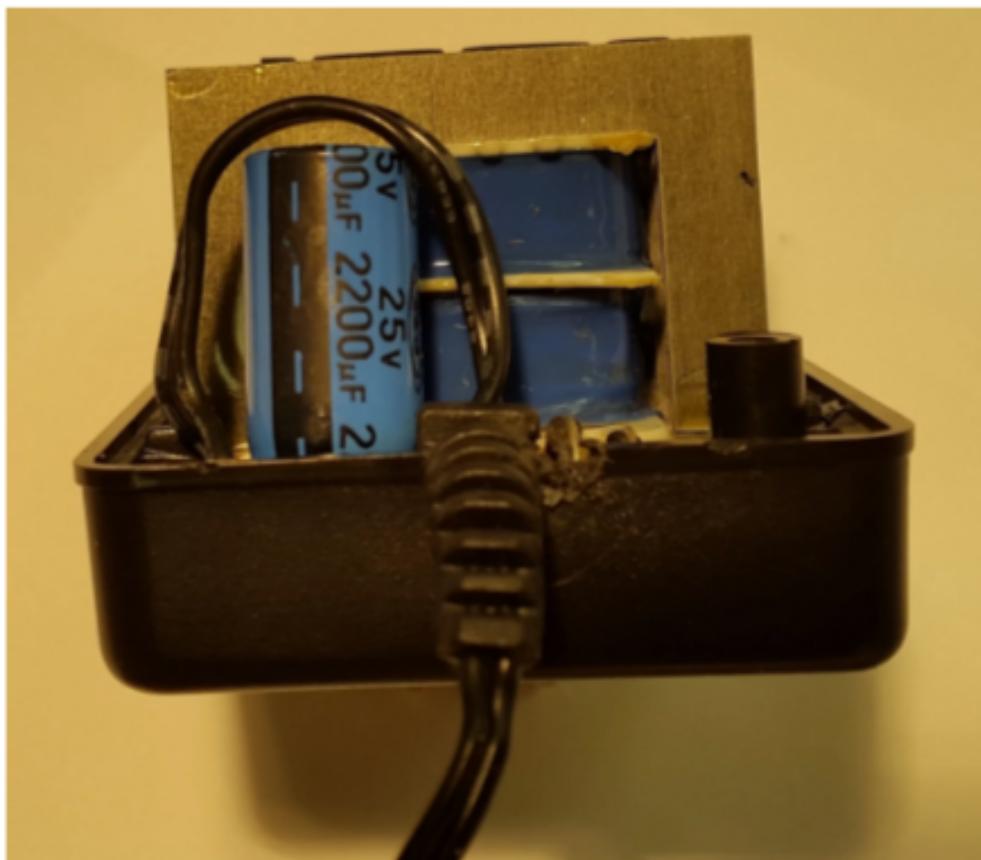


Figure 11. Capacitor in AC Adaptor

The capacitor in this wall adapter is a 2200 uF electrolytic capacitor. Electrolytic capacitors are typically used because it is possible to have a relatively high capacitance (100s or even 1000s of uF) and reasonable voltage tolerance (10's of volts) at an affordable price. For example, a quick search on an electronic component supplier's website shows me that a 2200 uF capacitor that can tolerate up to 50V is under \$3 if it is an electrolytic capacitor and more than \$250 if it is a film capacitor. The primary downside of electrolytic capacitors is that they have a much shorter life expectancy than film capacitors. In fact electrolytic capacitors are likely to be the component that fails first in any electronic system. Generally manufacturers

Full Circuit Recap

The preceding sections of this article show that the transformer, the rectifier and the capacitor are all that are required for a basic AC-DC converter. This final picture and schematic shows the end to end voltage processing done by the converter as it converts AC voltage into DC voltage.

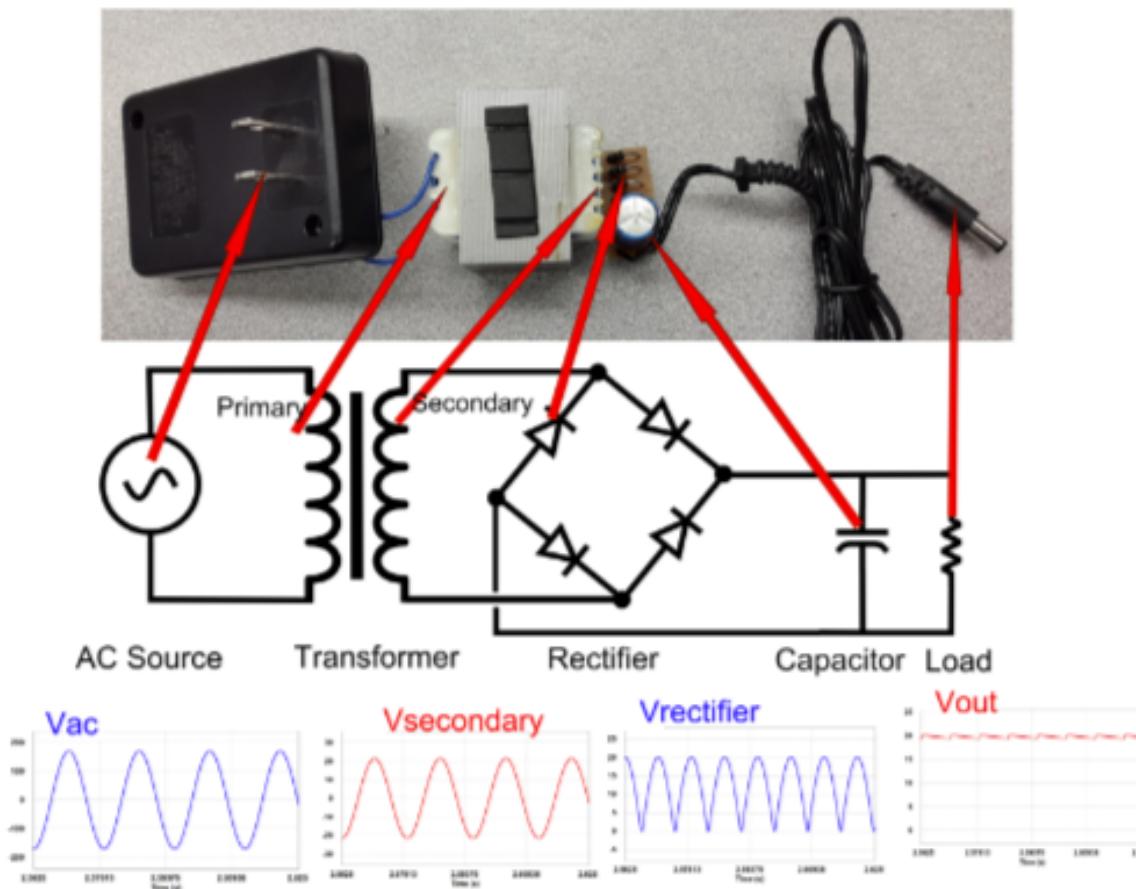
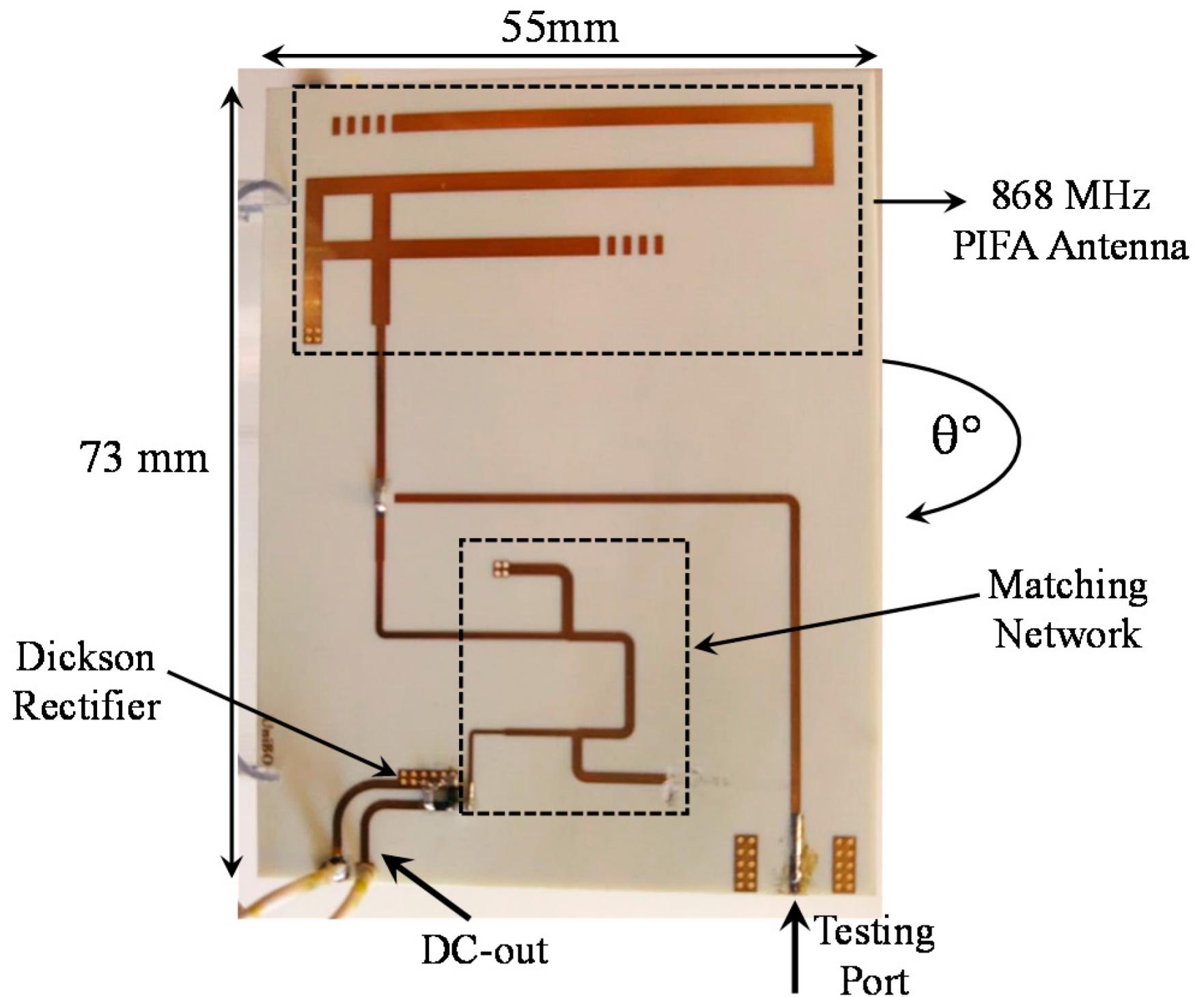
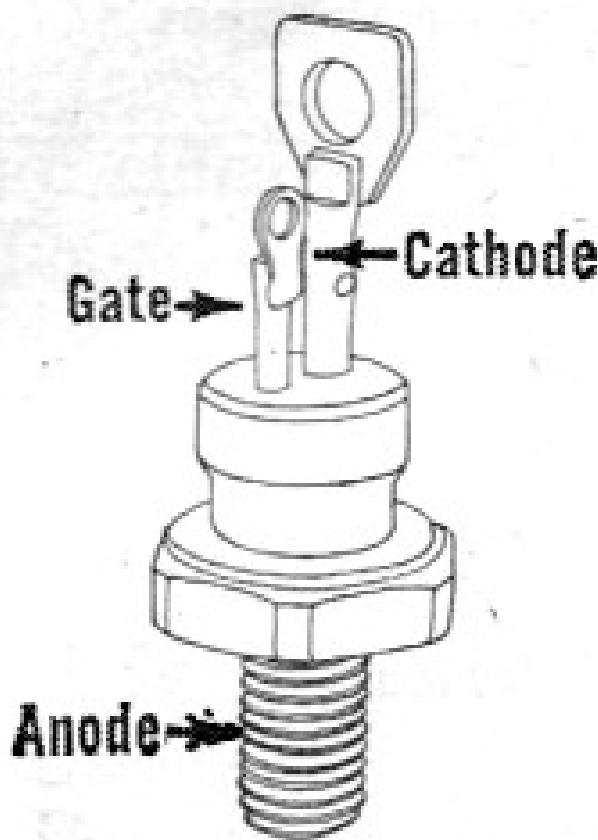


Figure 14. AC Adaptor, Schematic and Voltages

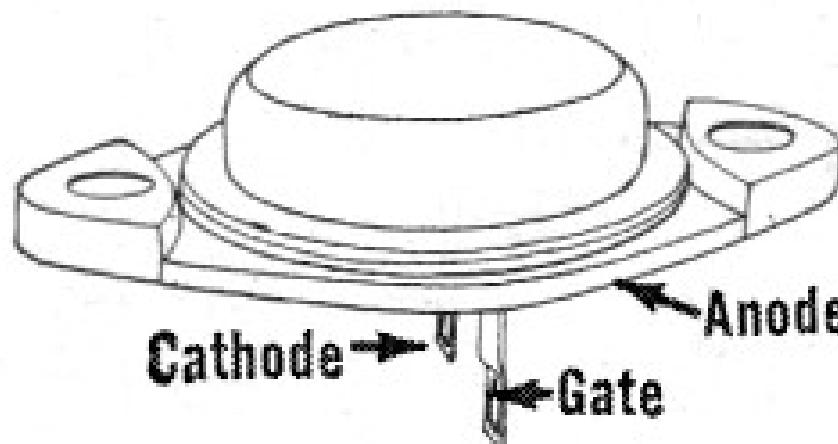
From this picture it looks like we get a reasonably steady DC output voltage given a 120V_{RMS} AC input voltage (note that the output is unregulated, so with no load, the DC voltage is actually higher than the rated 12V). For this 20 watt AC-DC converter, as long as the voltage ripple is meeting your specifications, there is not much more that you need to worry about. However, as mentioned earlier, there can be problems at higher powers due to the large in-rush current to the capacitor as it is recharged. These problems will be analyzed in part 2 of the rectifier investigation.



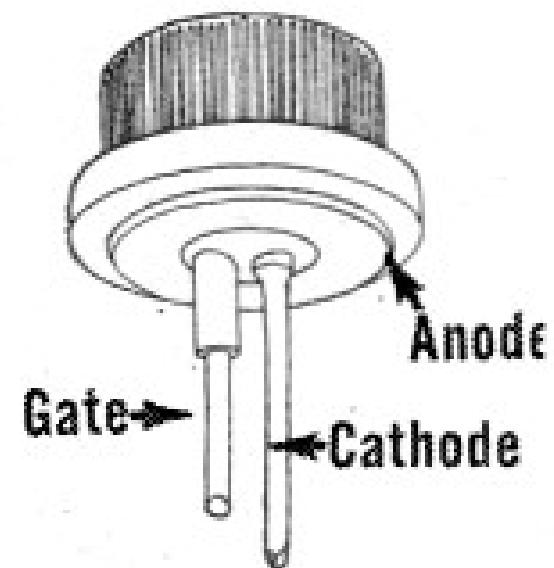
STUD PACKAGE



DIAMOND PACKAGE



PRESS-FIT PACKAGE



Maximum Forward Anode Current Rating

25 amps. r.m.s.

20, 25 amps. r.m.s.

18 amps. r.m.s.

Maximum Peak Forward Anode Voltage Rating

600 v.

600 v.

600 v.

Maximum Peak Reverse Anode Voltage Rating

20, 50, 100, 150, 200,
250, 300, 400, 500 v.

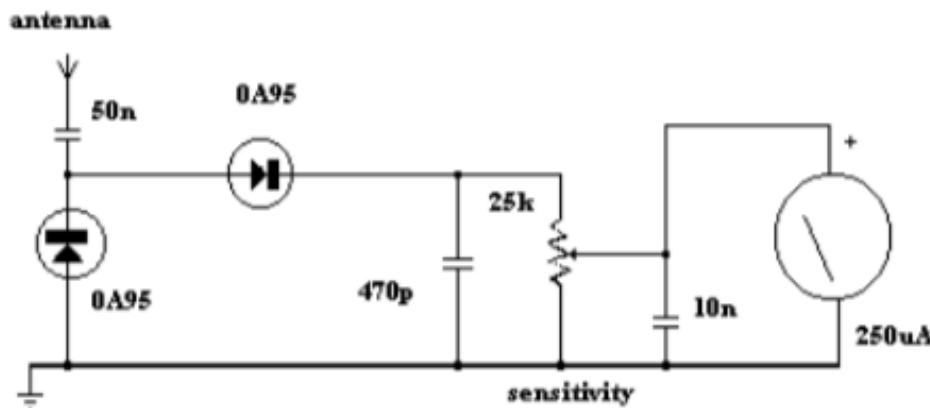
25, 50, 100, 200,
300, 400, 500 v.

25, 50, 100,
200, 300, 400 v.



Figure One below shows a schematic of an RF field strength meter. Like a crystal set, it requires no power source. However, unlike a crystal set, the meter has no tuned circuit. It responds to signals of any frequency.

Field Strength Meter



Parameters:

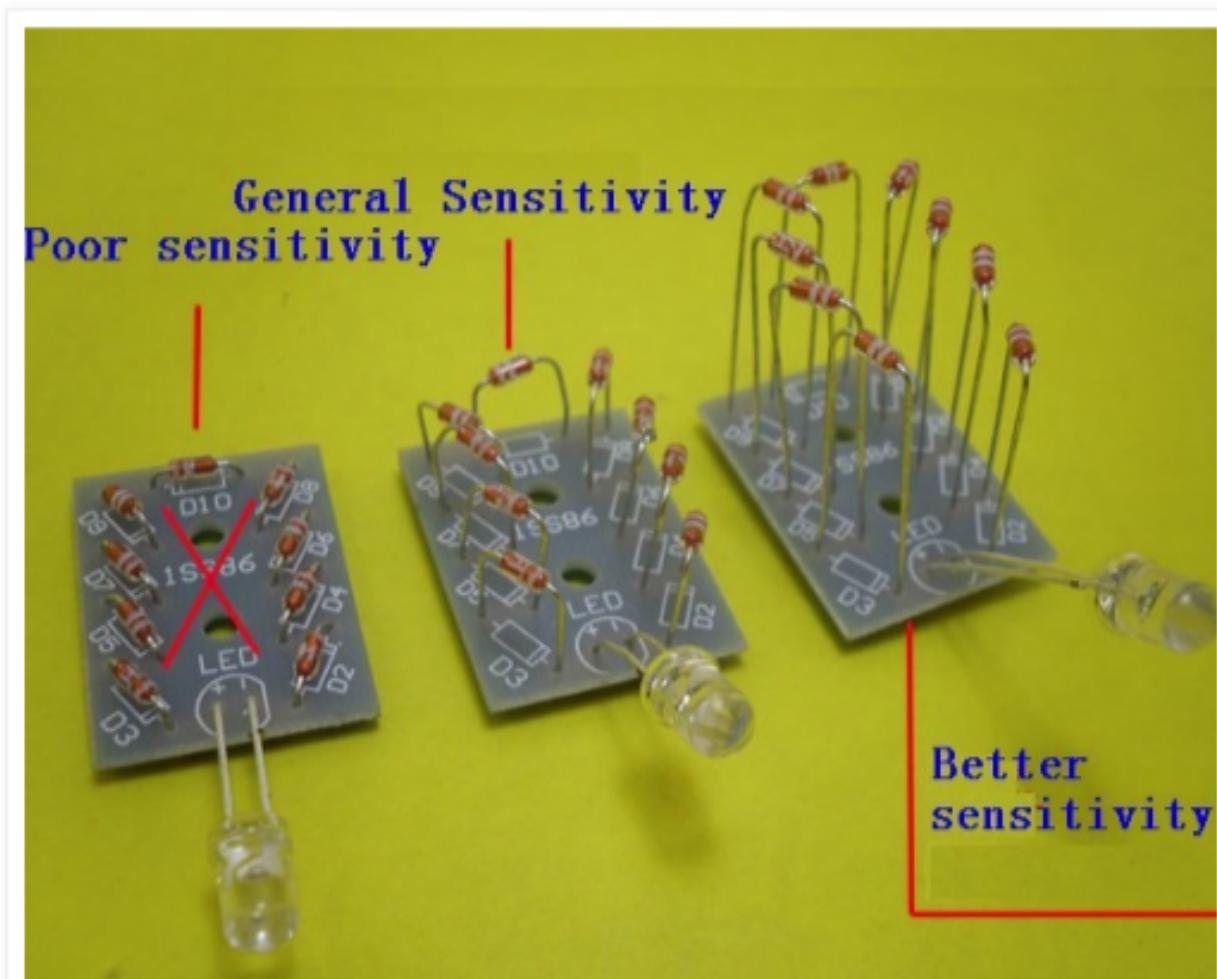
1. power supply voltage: No need power supply;
2. sensing distance: 5cm(max);
3. PCB board size: 2.1cm*2.8cm;
4. range of application: mobile phone GSM signal. It is useless for PHS, fixed-line telephone, CDMA mobile phone.
5. time of application: calling or In a call ;

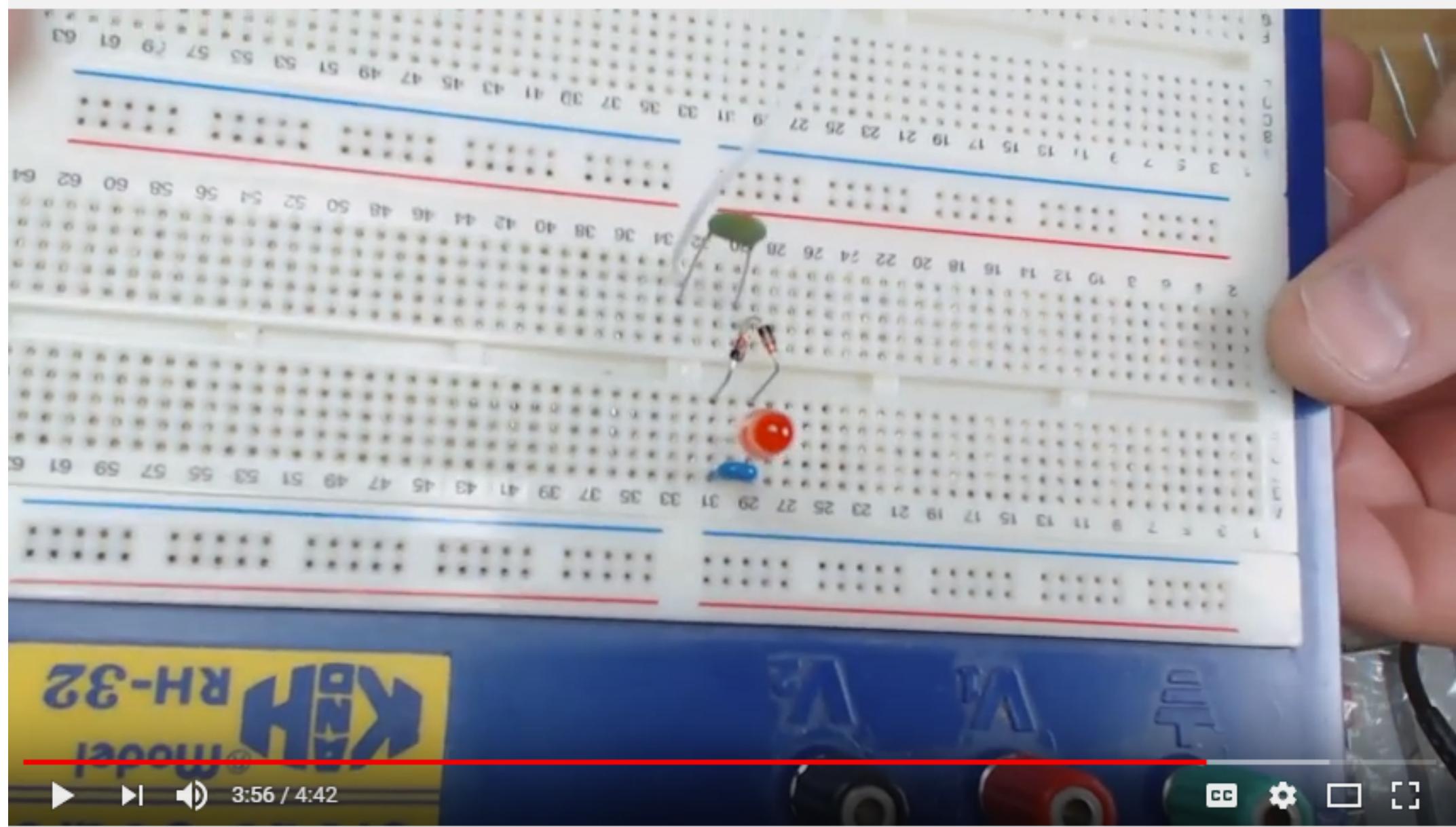
Listing:

circuit PCB x1

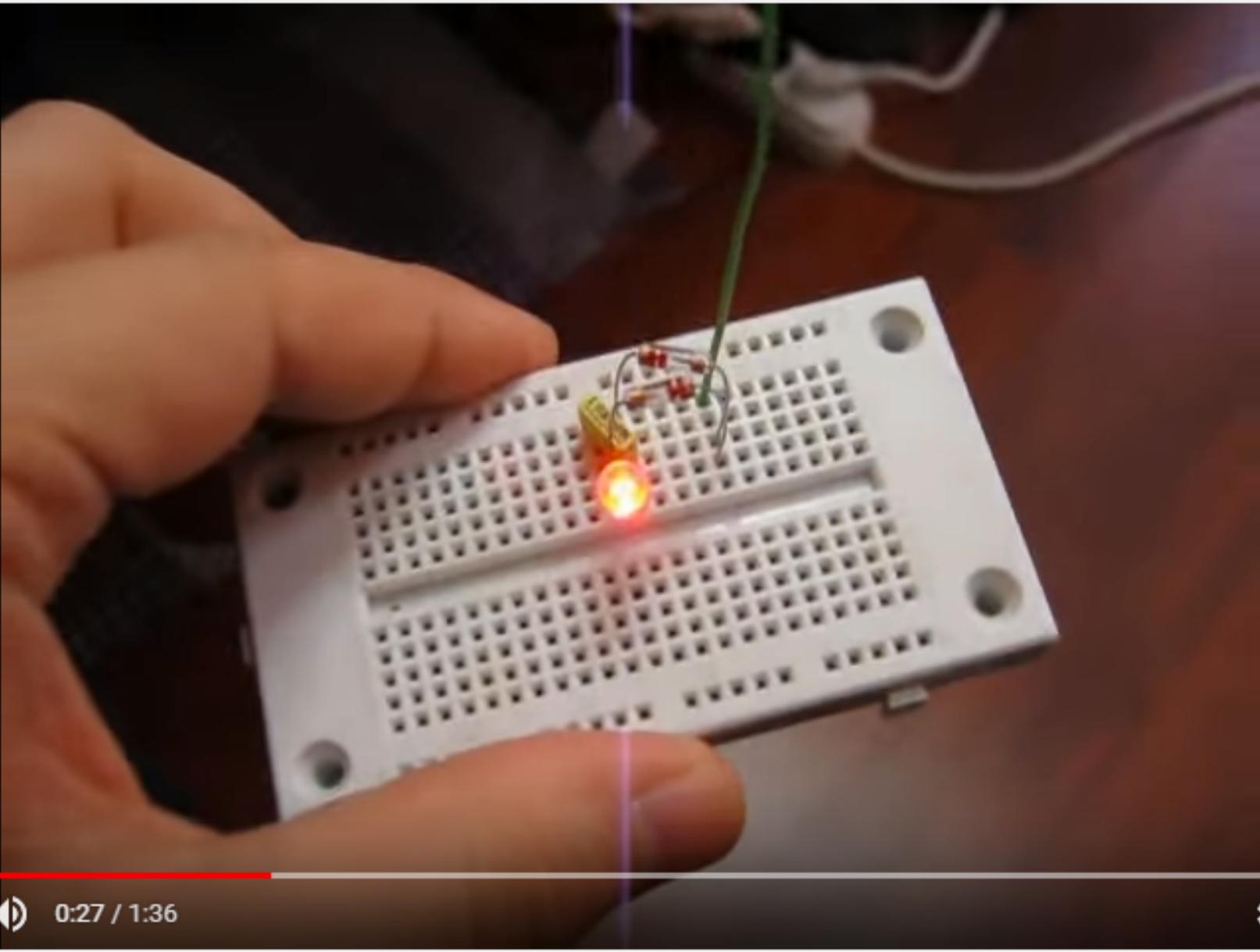
1SS86 detector diode x9

5mm white green LED x1





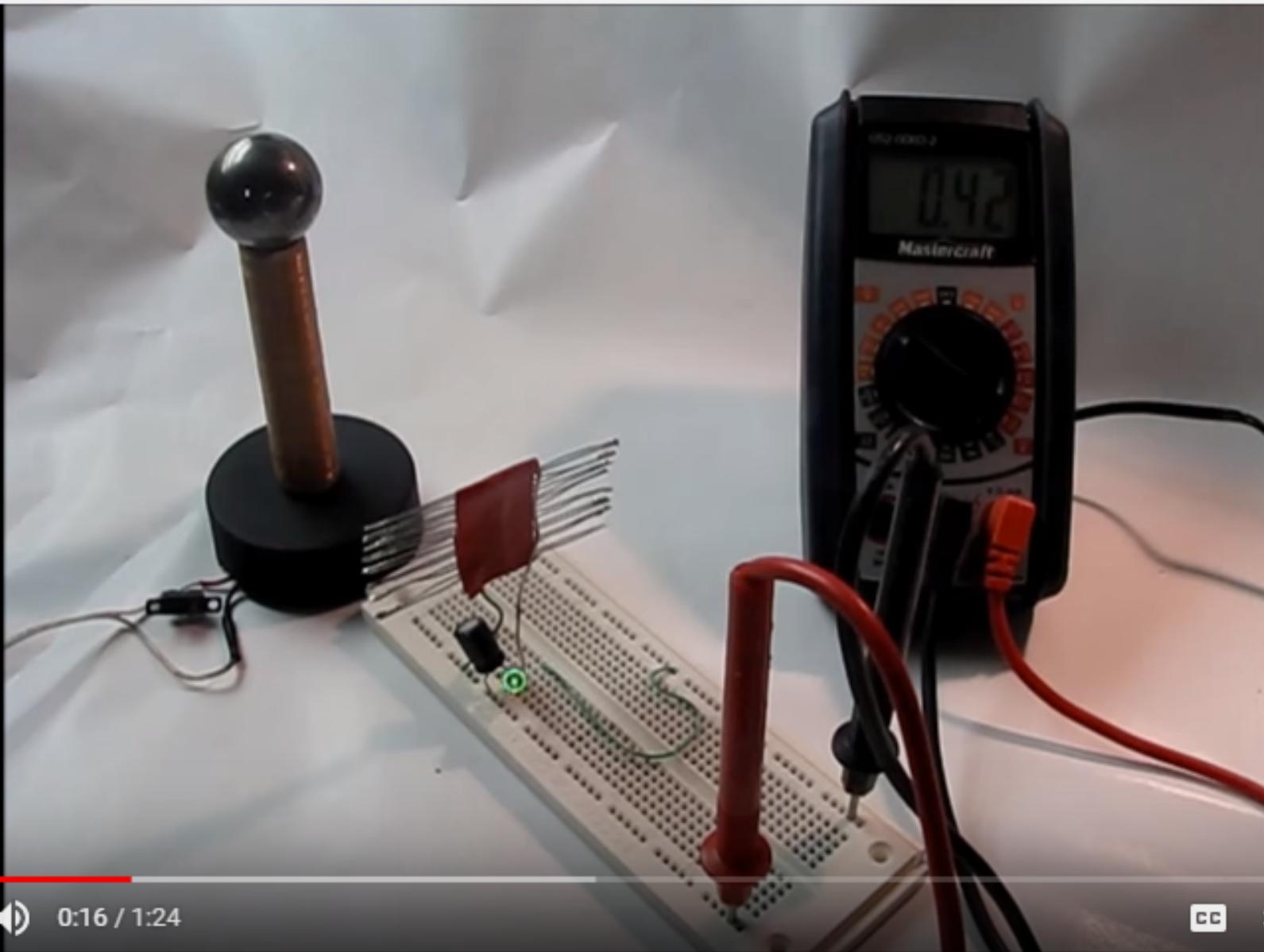
Rf Probe, Rf Detector simple circuit



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⚙️ 🎞️ 🎥

Electric on the air with 7W Booster

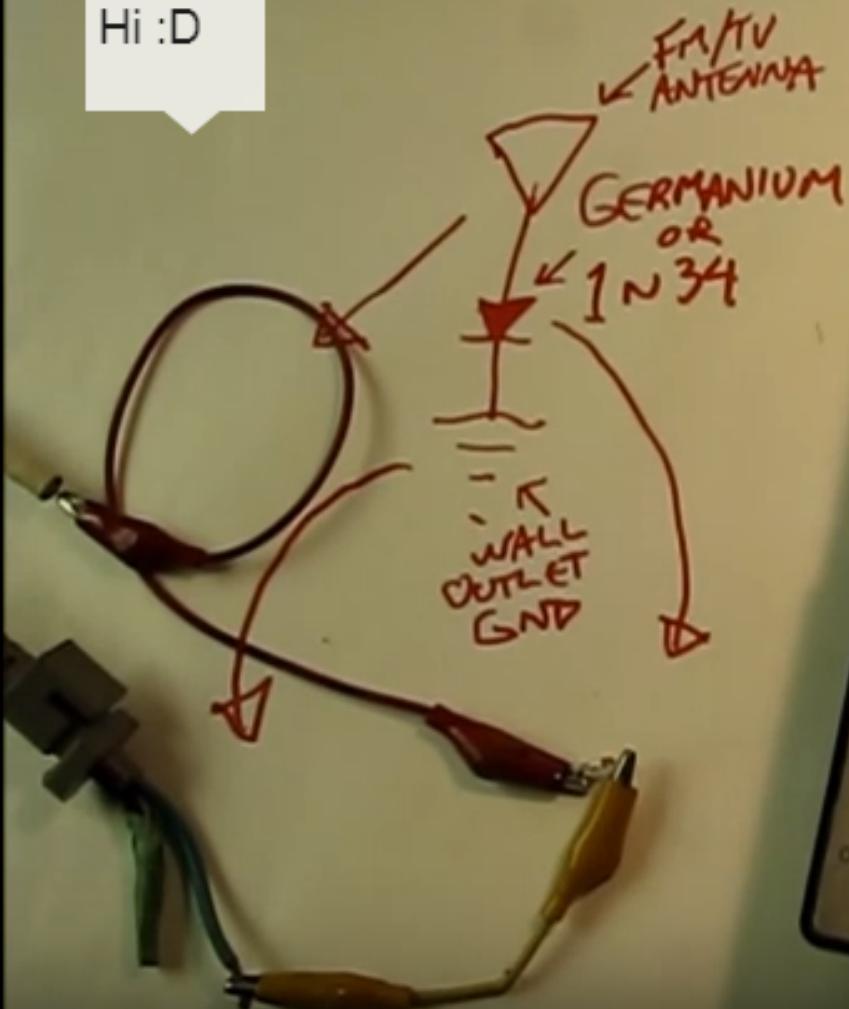


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DIY Wireless Power - Part 5: DIY Simple Rectennas!

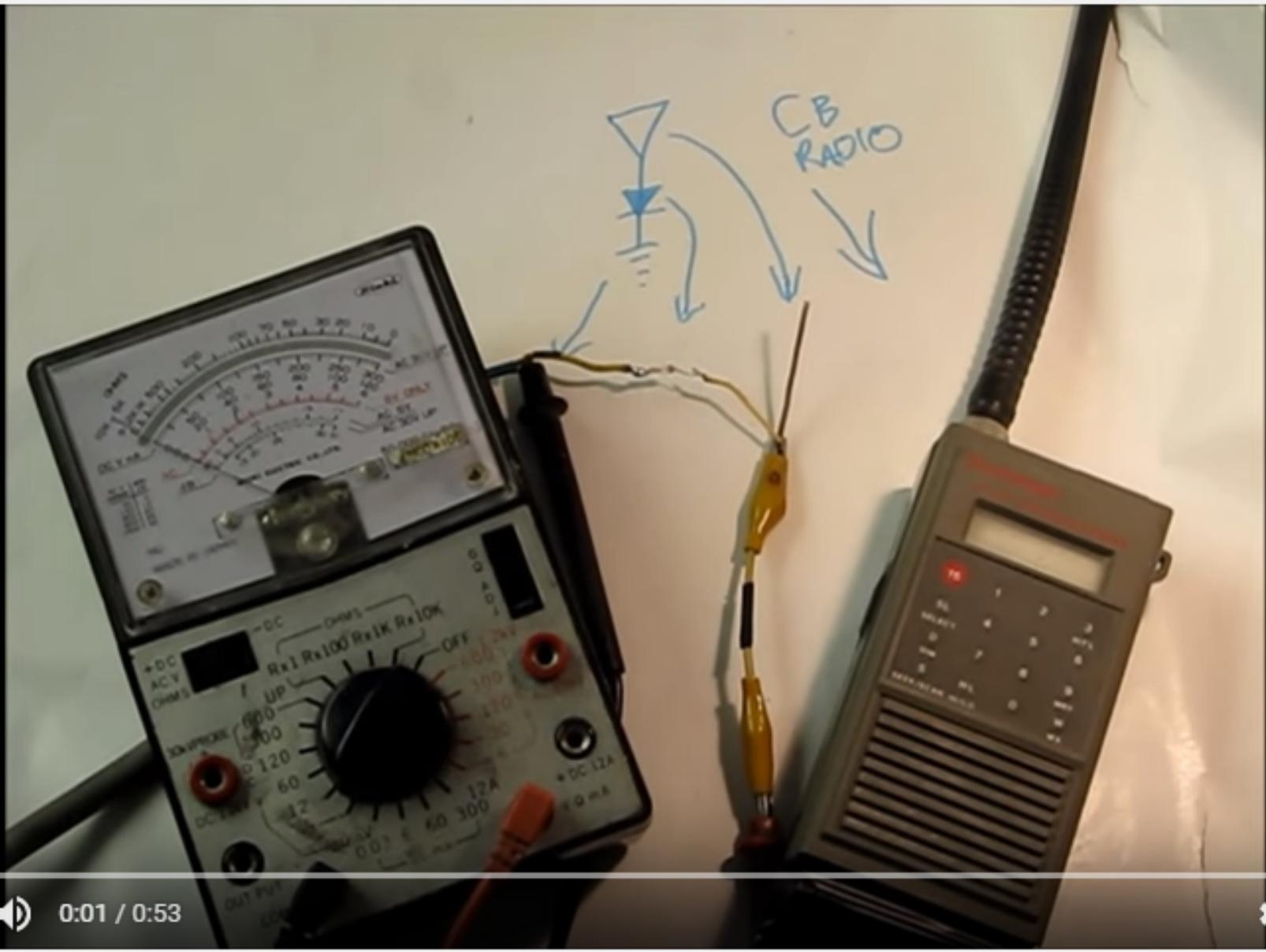
Hi :D



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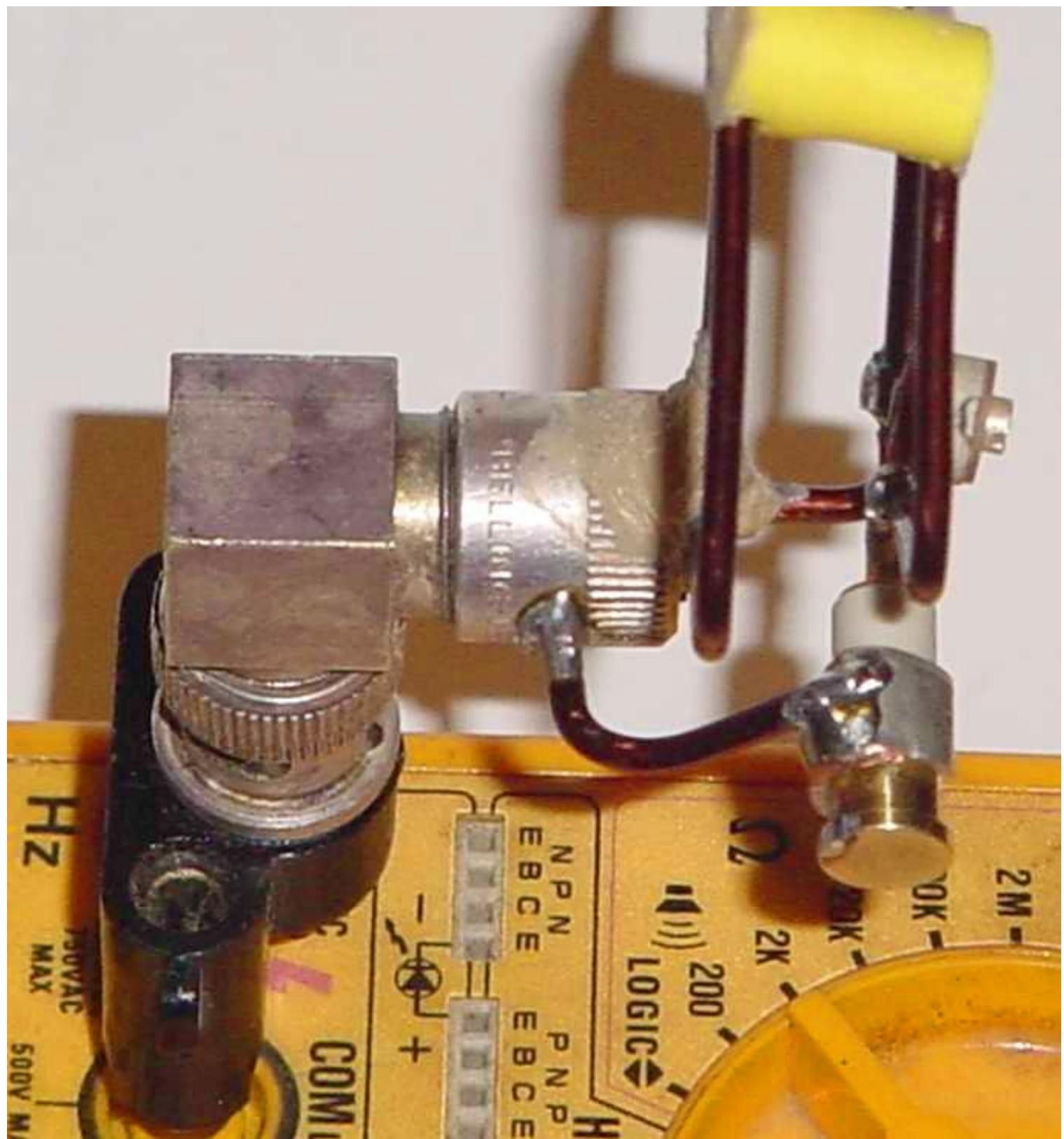
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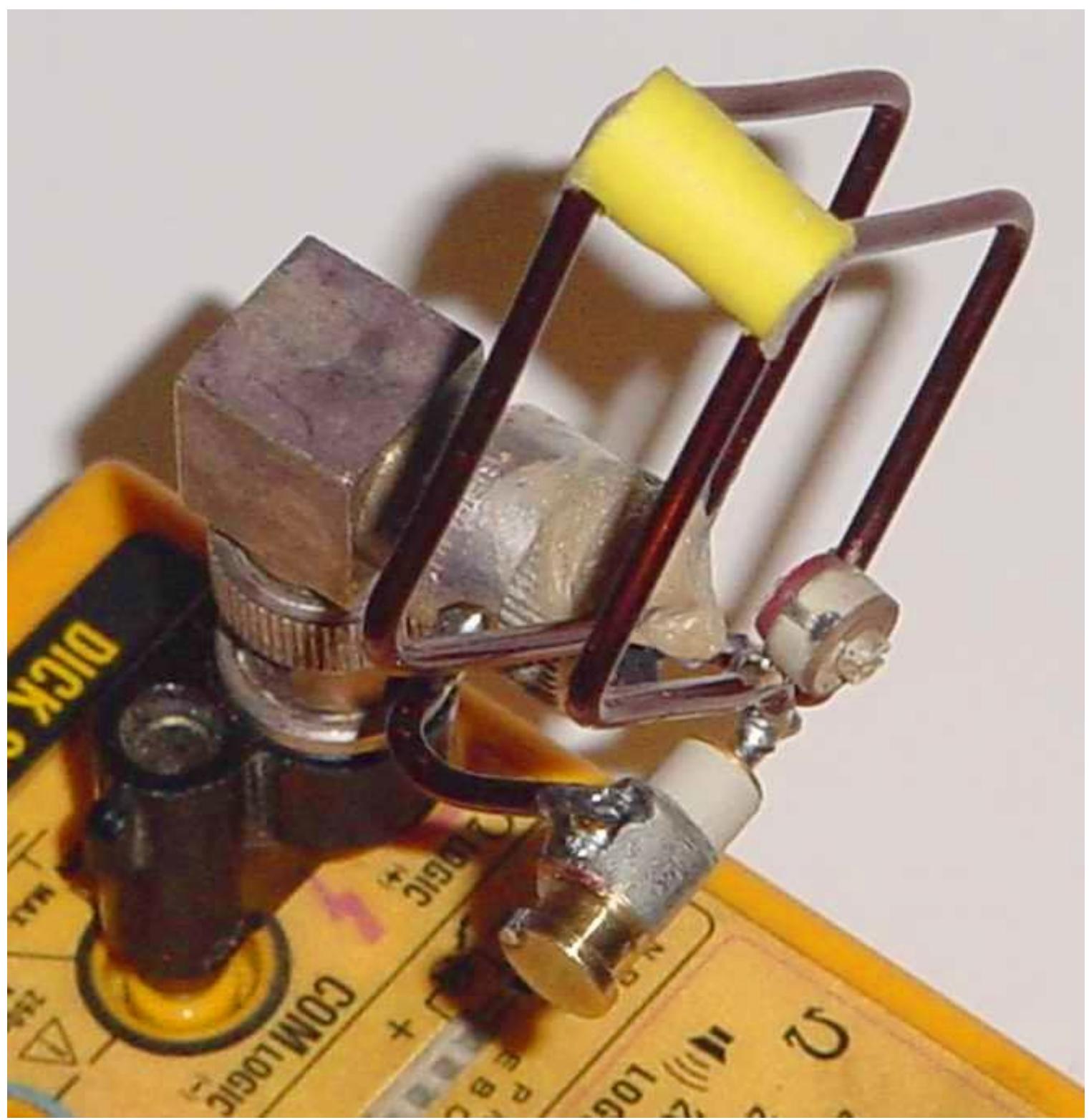
DIY Wireless Power - Part 1: TV/FM Antenna, 1N34/Germanium Diode

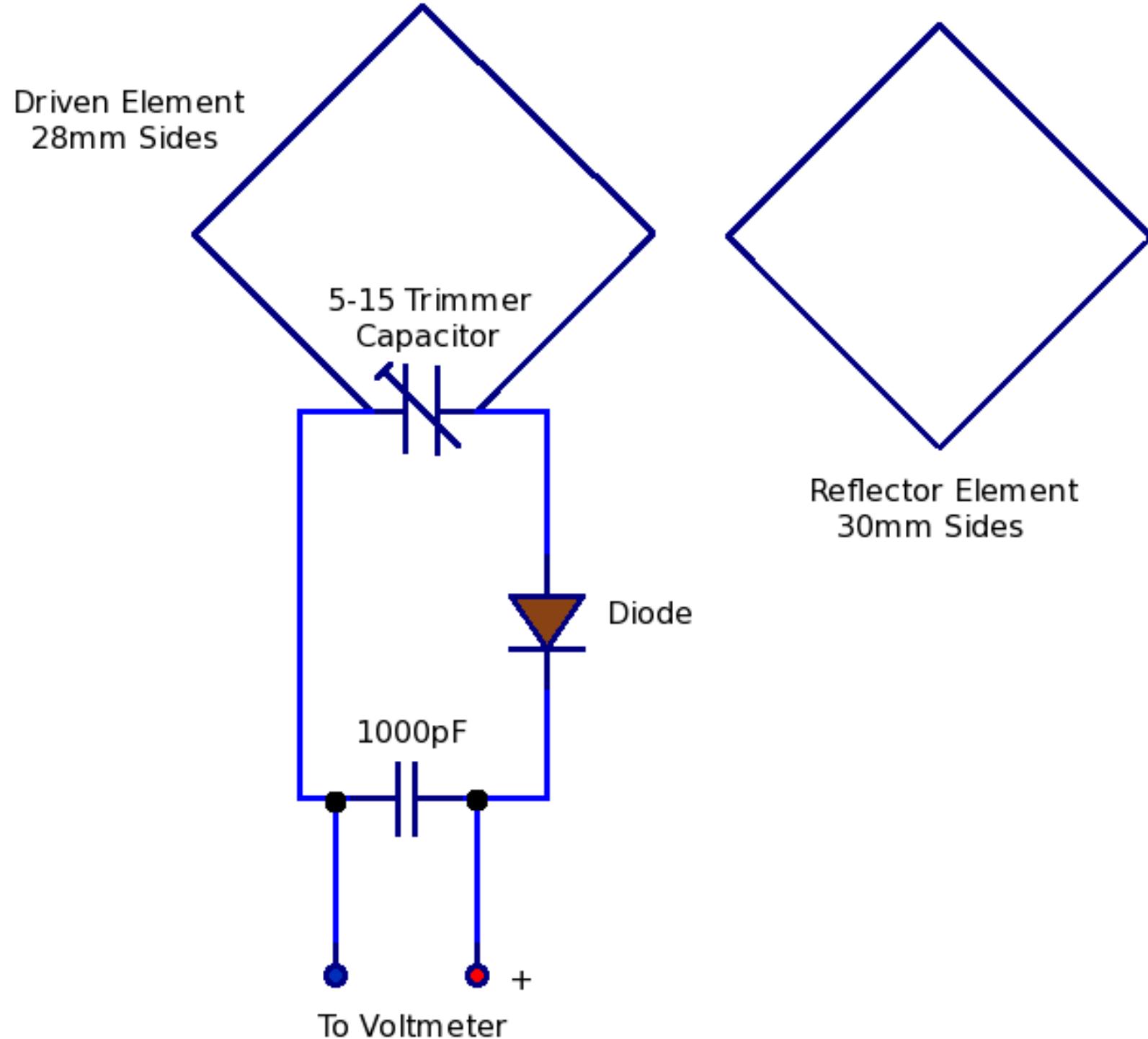


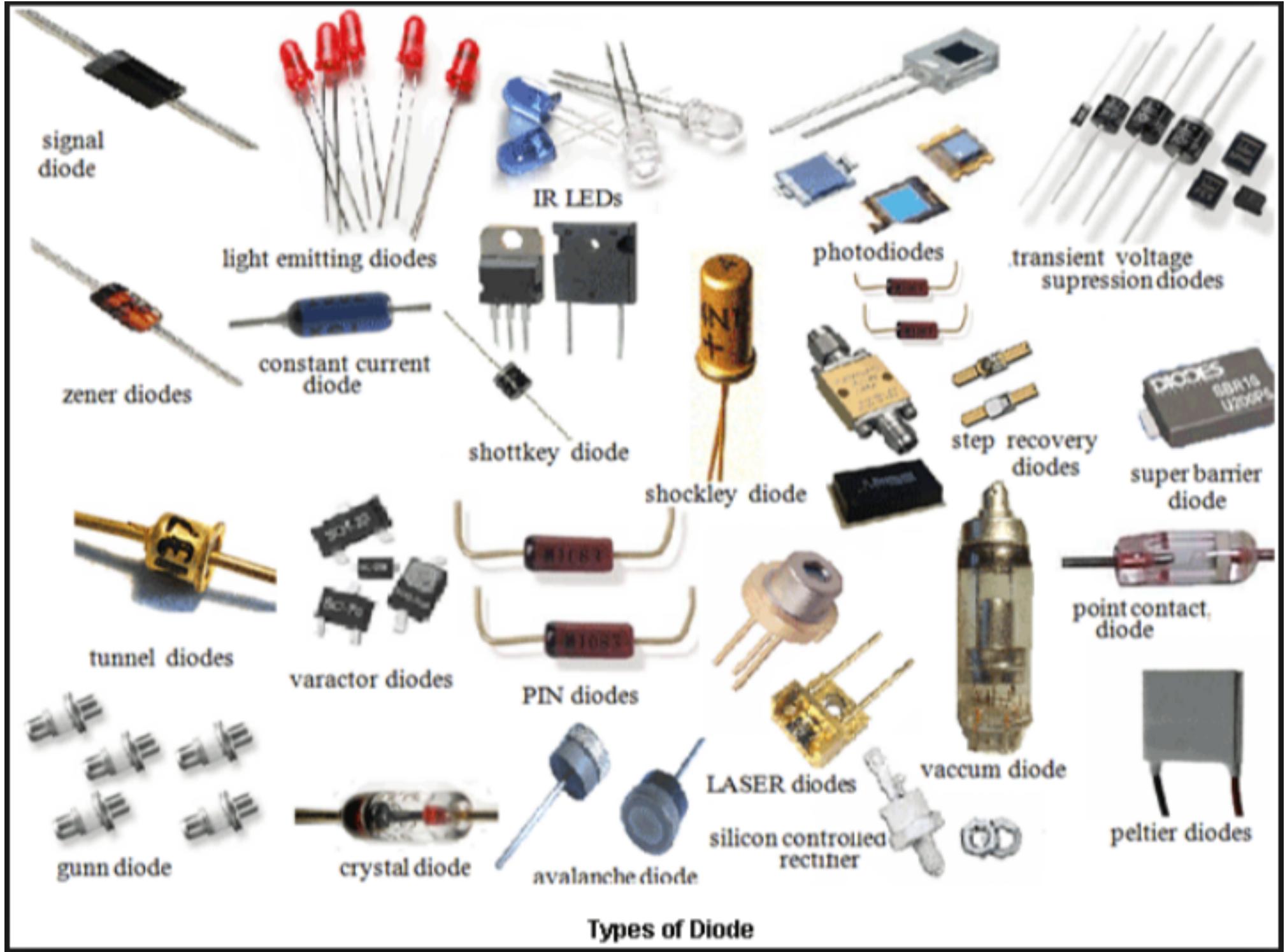
DIY Wireless Power - Part 2: Simple Wireless Power Transmission!











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Free Energy Microwaves Experiment.1

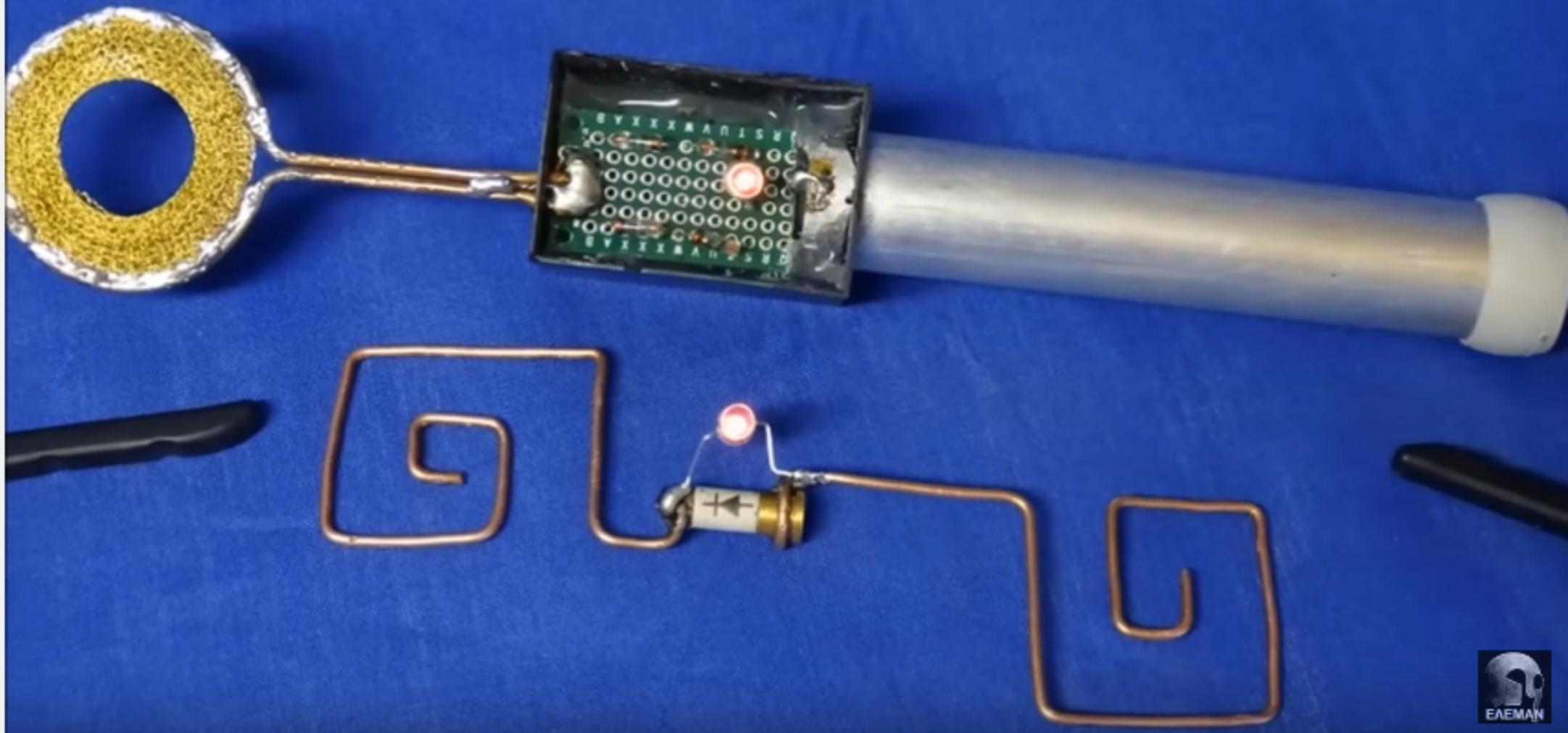
i



ЕЛЕМАН



i



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⚙️ ⏺ []

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▶ ▶! 🔊 0:56 / 1:49



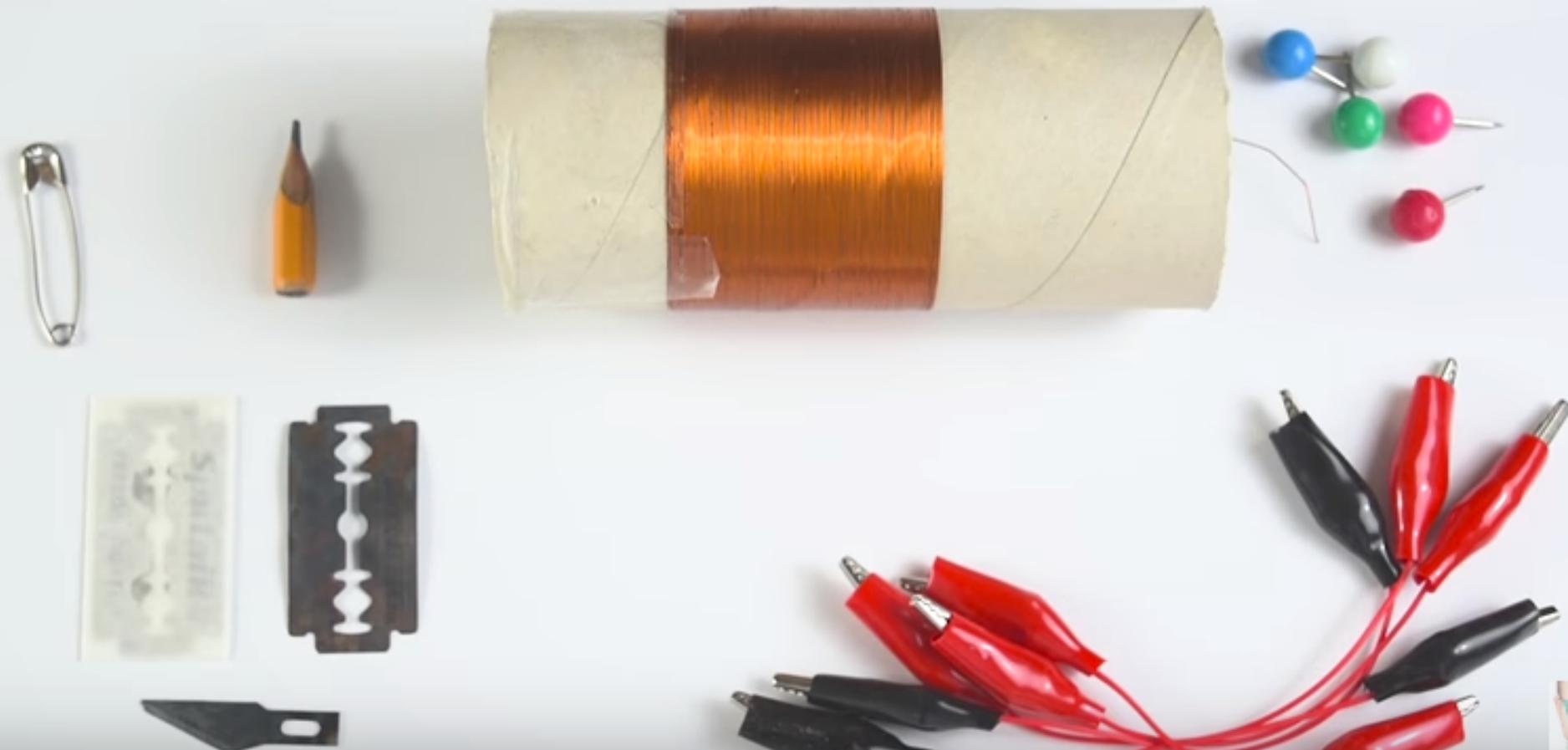
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Suggested: Unusual high-speed LED SPINNER / With batteries i



romanursuhack

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FOXHOLE RADIO FROM THE PENCIL AND THE BLADE / TUTORIAL



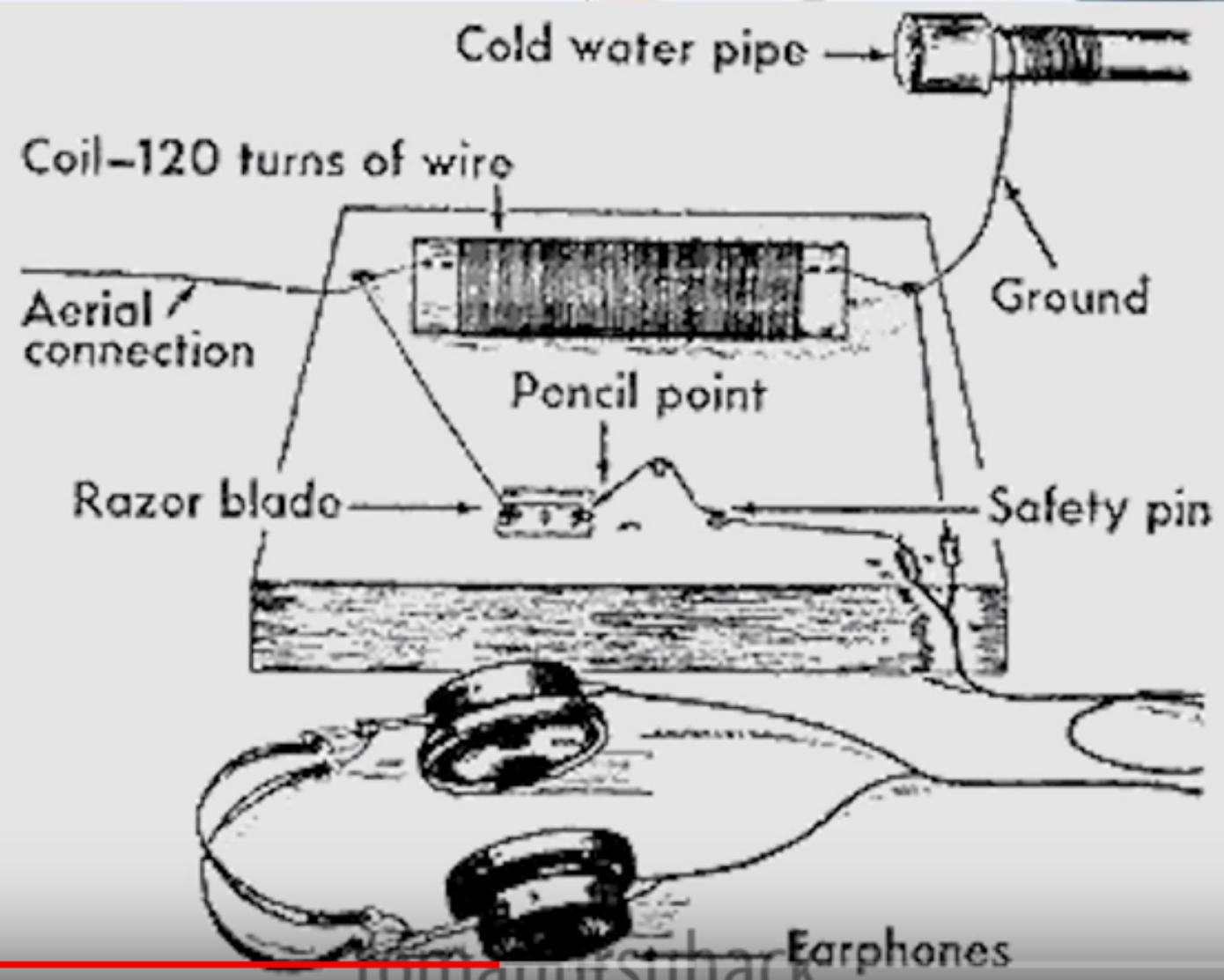
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romanursuhack

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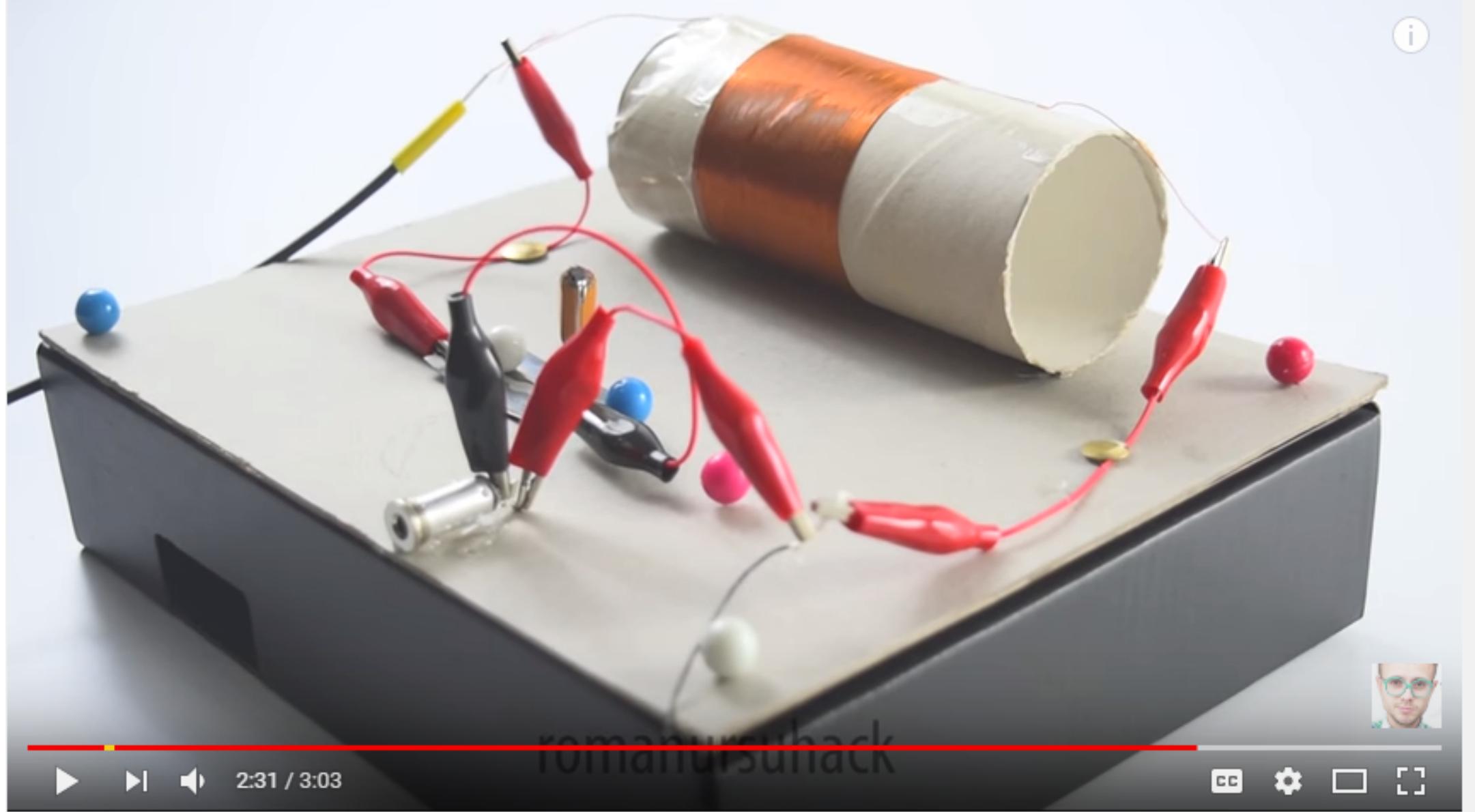


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VK3YE Crystal Set

Schematic & Layout diagrams

Press Back button to return to main article

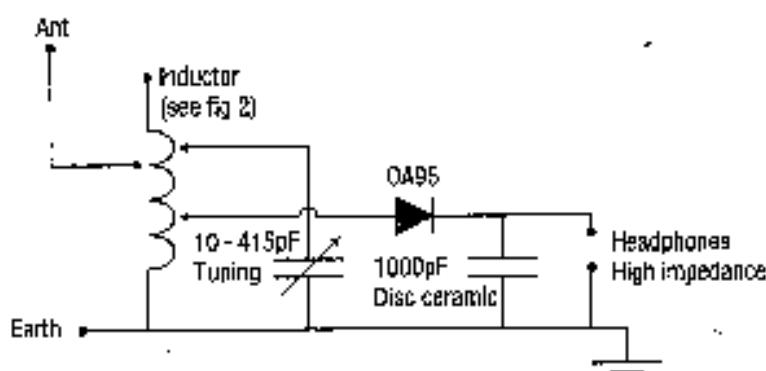


Figure One: Schematic diagram of crystal set

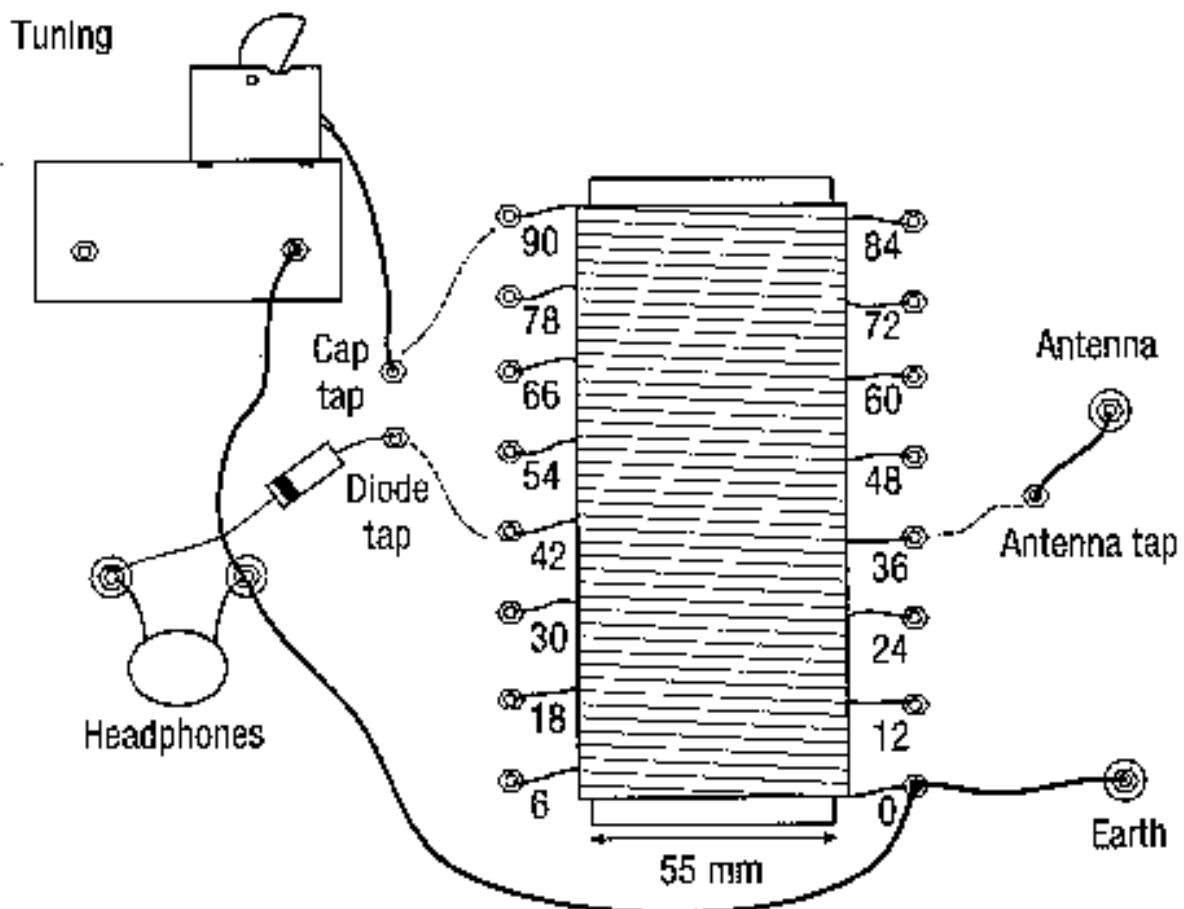


Figure Two: Rear view of iron panel.



A simple crystal set for free power radio

Of any electronic project, the crystal set would have to rate as one of the most popular. Many amateurs are on the air today because of their early construction of a crystal set. Most practical electronic books for beginners include at least one crystal set project. Unfortunately, some of these circuits take simplicity too far and deliver mediocre performance, often by omitting key components such as the tuning capacitor, or failing to provide coil taps.



Parts List

* 10 " 415 pF variable capacitor x1 (see text)

* 0.001 uF disc ceramic capacitor x1

* 1N60 germanium diode x1

* Vernier dial or drive x1 (optional)

* 2mm micro socket x19

* 2mm micro plug x6

* Banana socket (red) x2

* Banana socket (black) x2

* Insulated wire 20m

* Tinned copper or bell wire 1m

Other items: case and handle; polyethylene chopping board; Coil former " 55mm dia, 150 mm long; screws, nuts, washers and spacers; mounting bracket for variable capacitor.

Case and handle

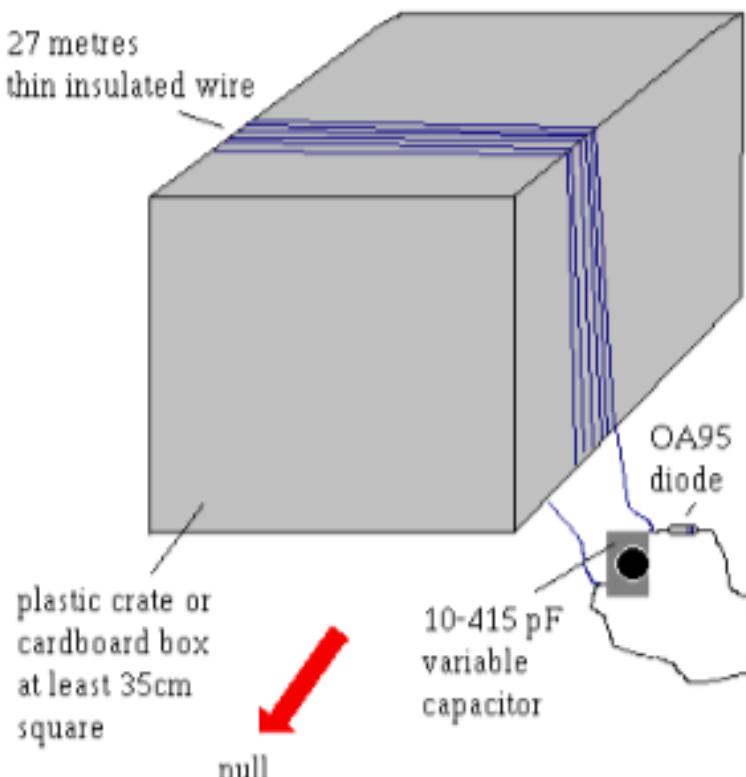
Use non-metallic material for the enclosure. The box used in the prototype was originally a speaker bought cheaply at a school fete. The lid (which held the speaker) was removed, and the rest of the box painted. The top carry handle is optional and came from a hardware store.



Construction

Commence construction once all components have been obtained. Plan how the parts will fit behind the front panel. The diagram and pictures above show the arrangement used in the prototype. The coil is fastened with stand-offs and the variable capacitor is screwed to an aluminium L-shaped bracket. 4mm binding posts with banana sockets are used for the antenna and headphone connections, and 2mm micro sockets for the coil tapping points.

may be true for some crystal set circuits, but not for this one. Making use of its own aerial, this set can be moved from room to room with no trailing aerial and earth wires. With it you'll hear the stronger local signals and be able to null out unwanted transmissions on adjacent frequencies.



Using the radio

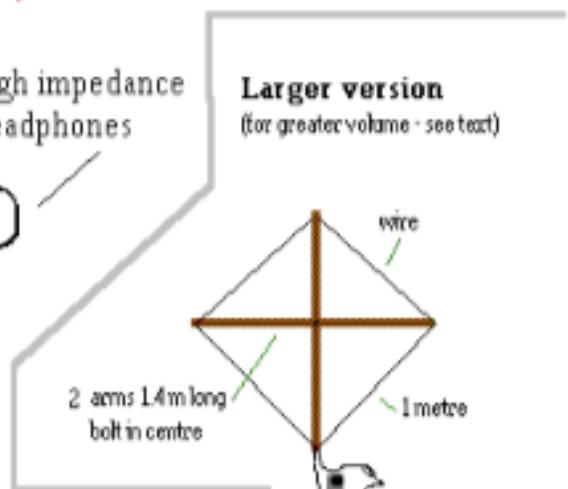
This radio is very easy to use. Take it in to a quiet room. Put on the headphones and tune around for a signal. Rotate the box for the clearest reception with no interference. In a large city, as many as 10 stations can be received on this set.

direction of desired signal



high impedance headphones

Larger version
(for greater volume - see text)



capacitor, diode, headphones
(connected same as above)

Notes:

1. The polarity of none of the components used is critical.
2. Removing turns would raise the frequencies able to be covered (eg 160m) while adding turns lowers the frequencies tuned.
3. The value of the variable capacitor is not critical. However a smaller type would reduce coverage of lower frequencies.
4. The headphones used must be high impedance. If you only have low impedance phones, use a transformer. Even a power transformer with a mains voltage primary and a low voltage secondary (3-12 volts) will work if the primary is connected to the diode side of the circuit.
5. The diode used is any germanium type - it is not critical. IN34A, OA90, OA91 or OA95 are all suitable. Germanium types can usually be recognised by their clear glass envelope and two bands near one end.
6. The type of insulated wire used for the coil is not critical. Spacing of the turns is also not critical.
7. The size of the box or crate is not critical. However, a bigger coil gives louder signals. An experiment with winding the 27 metres of wire on a cross made of two 1.4 metre long poles was successful as it gave much more sound in the headphones. See drawing above.

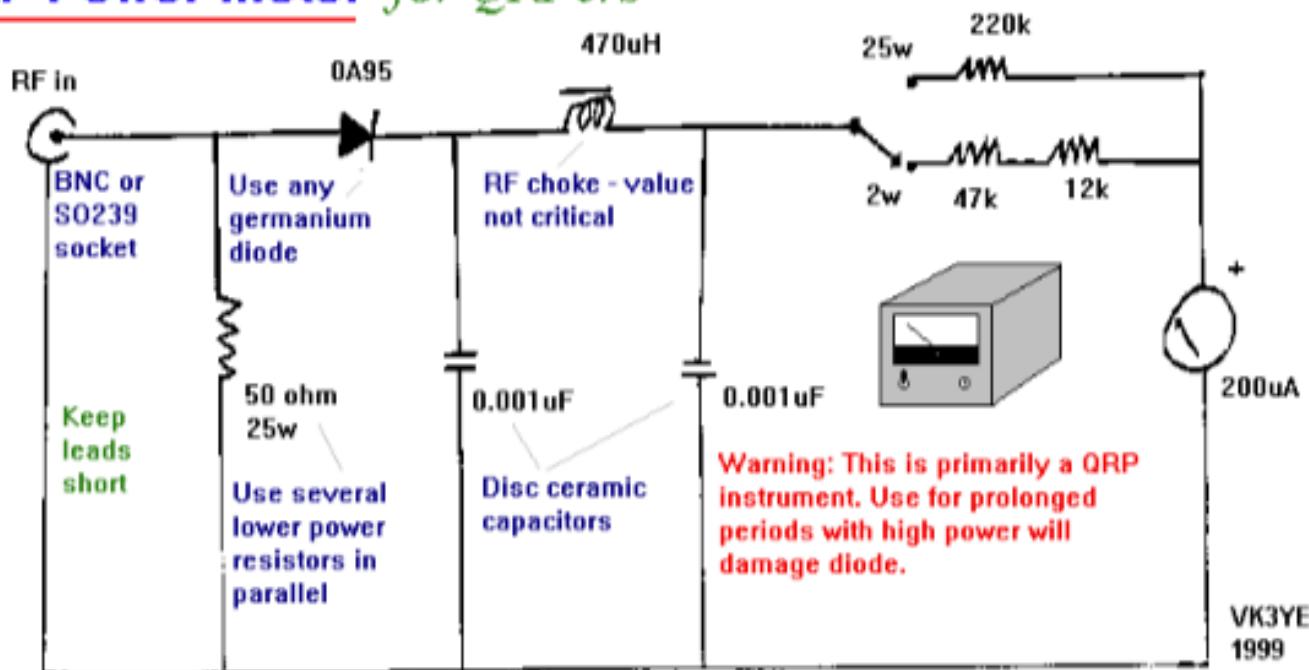
Boost AM radio reception

This project can also be used to boost the performance of AM transistor radios. Build as per instructions but omit the diode and headphones. To use, put the radio inside the loop so the turns on the ferrite rod inside the set are parallel with the turns on the box. Adjust V. capacitor and turn box for best reception.

A QRP RF power meter

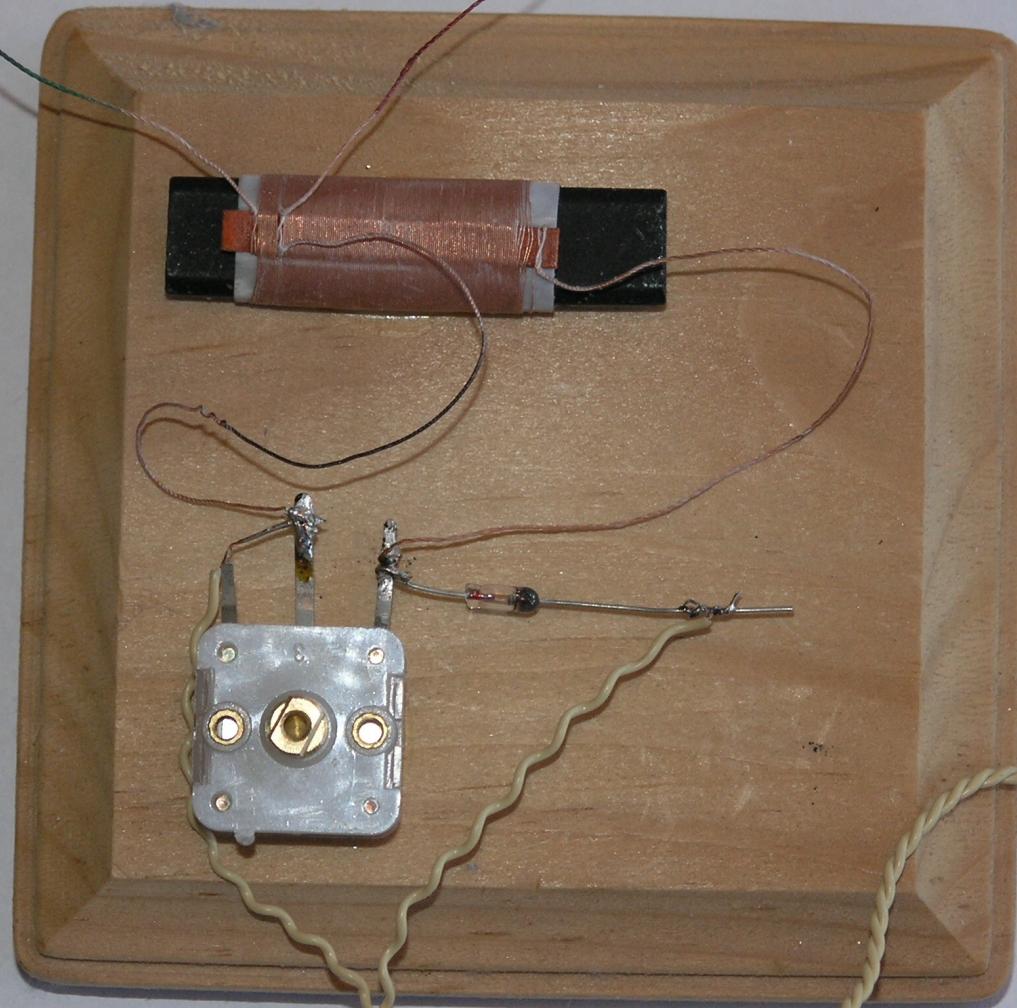


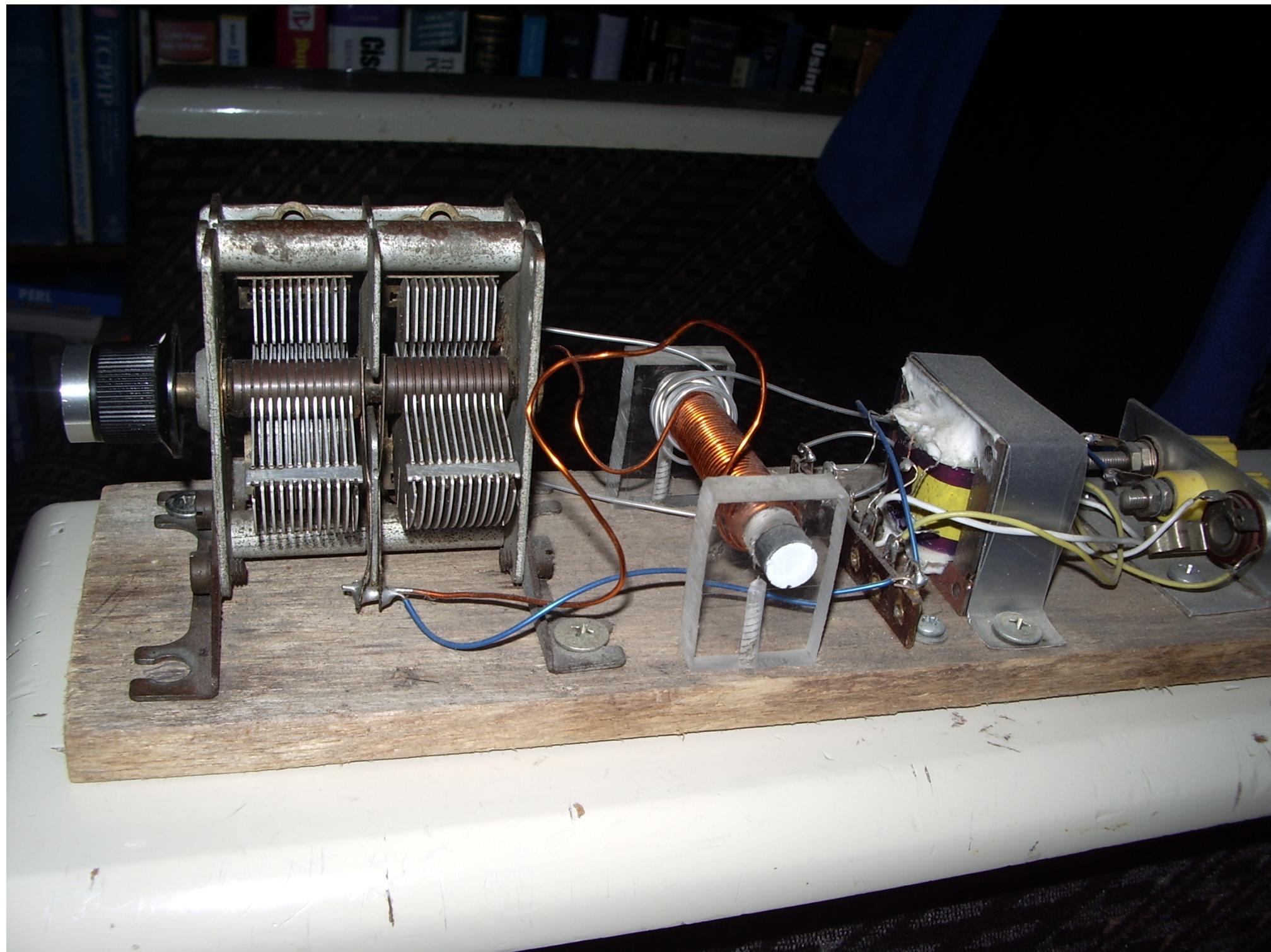
RF Power Meter for *QRPers*

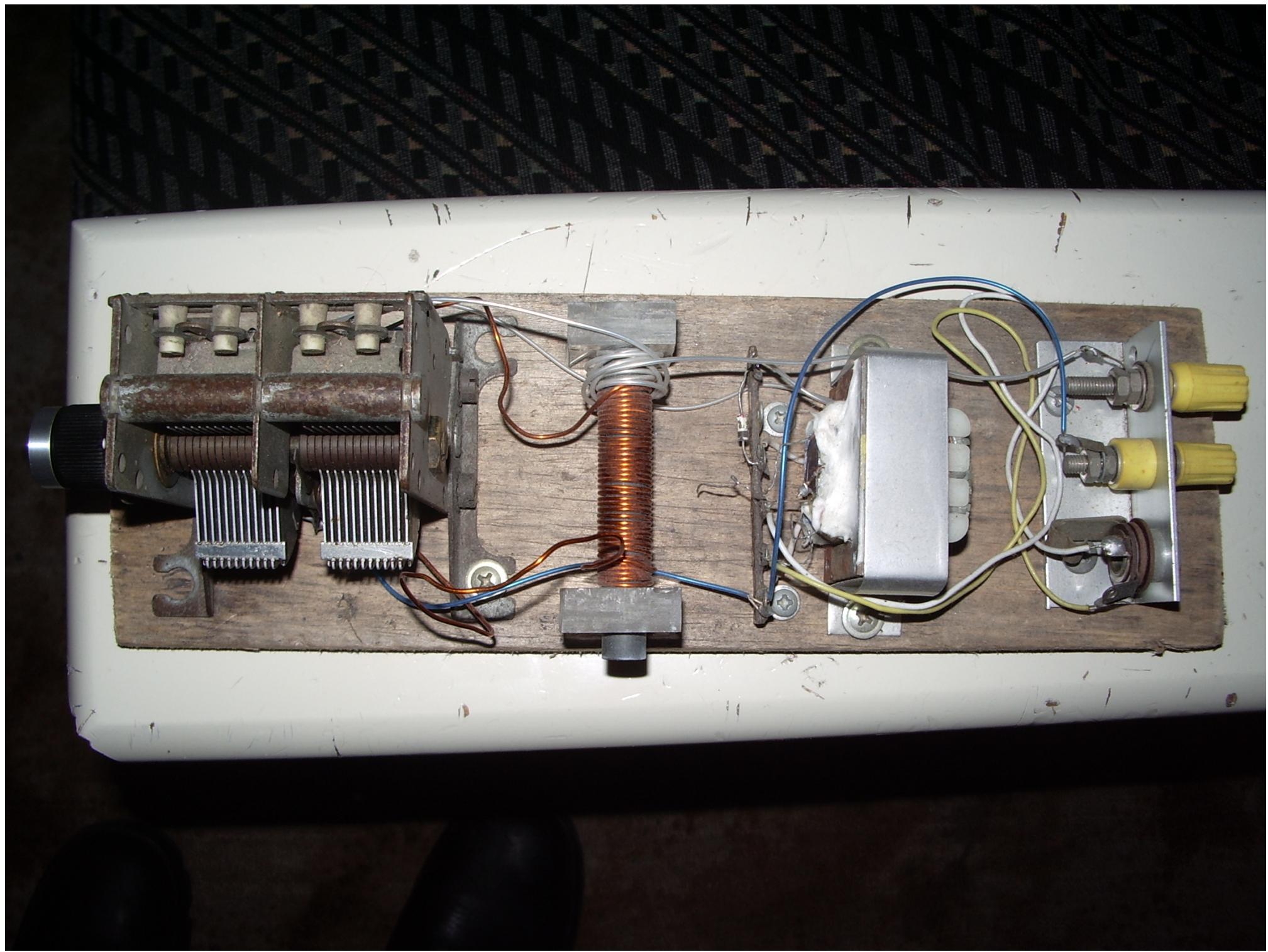


To Ground

To Antenna







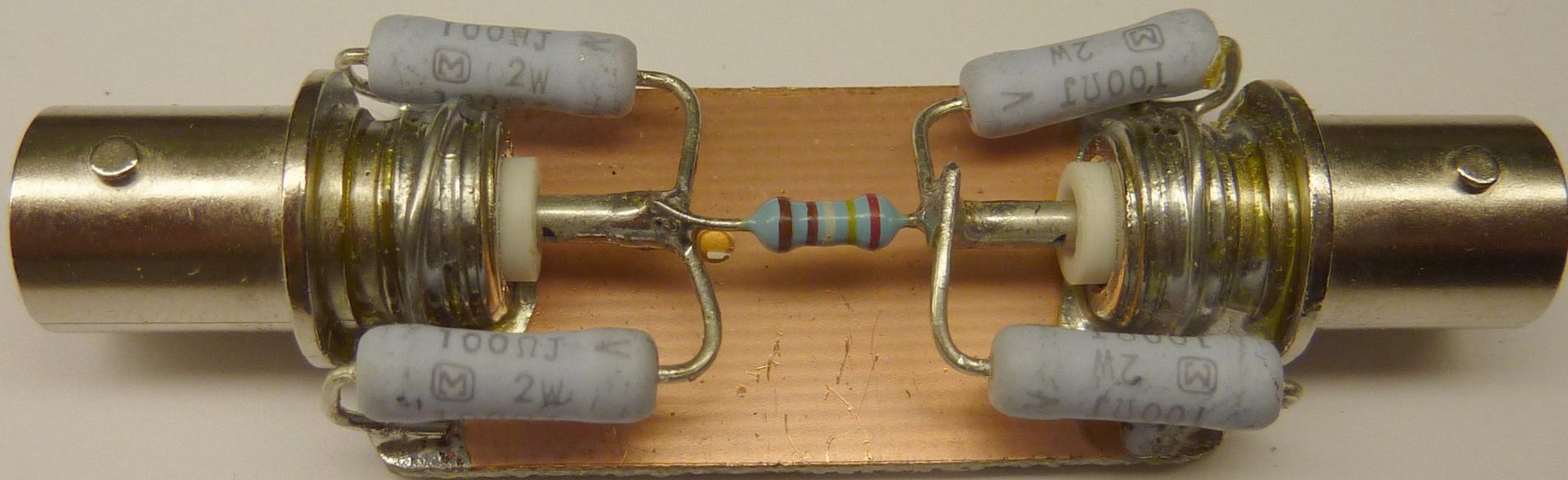


Figure 1 Three constructions for magnetic field probes

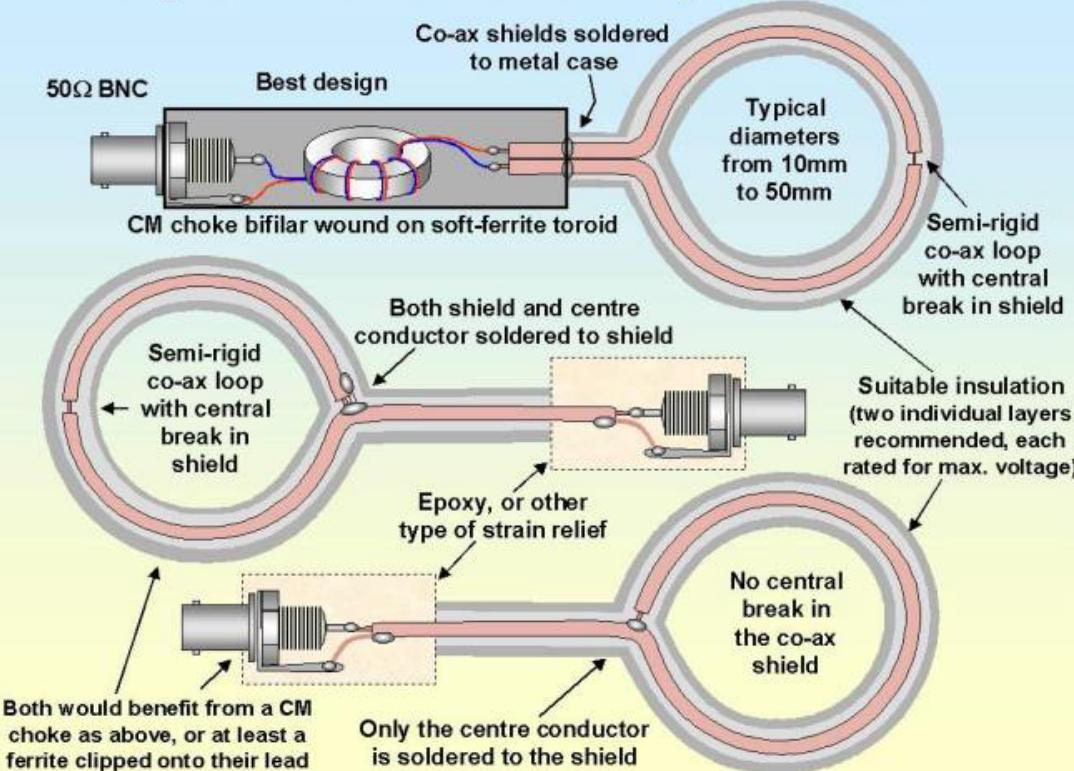
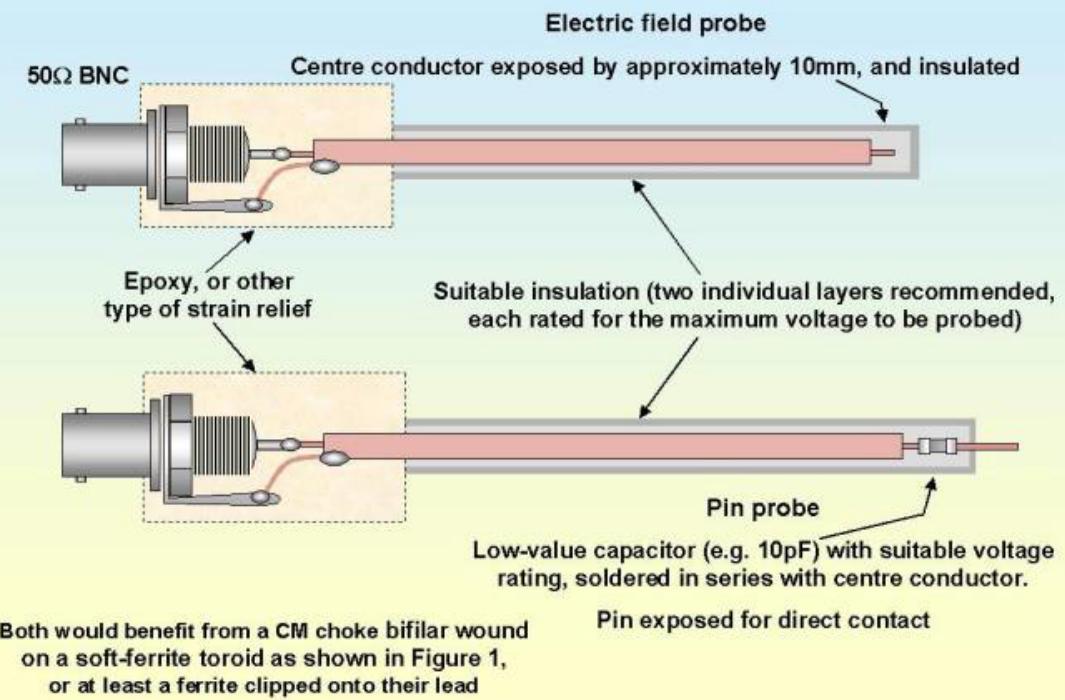
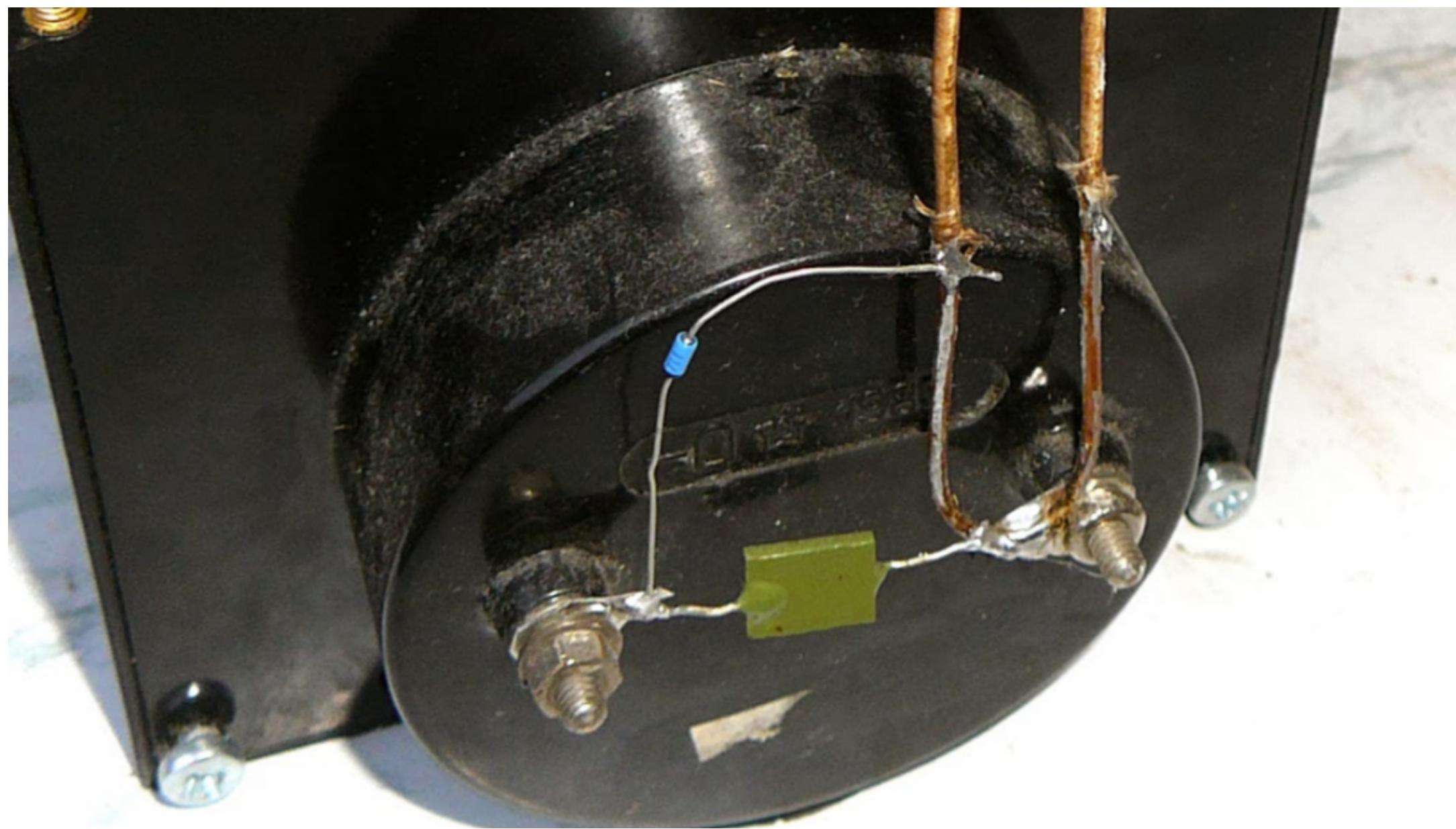


Figure 2 An electric field probe, and a pin probe



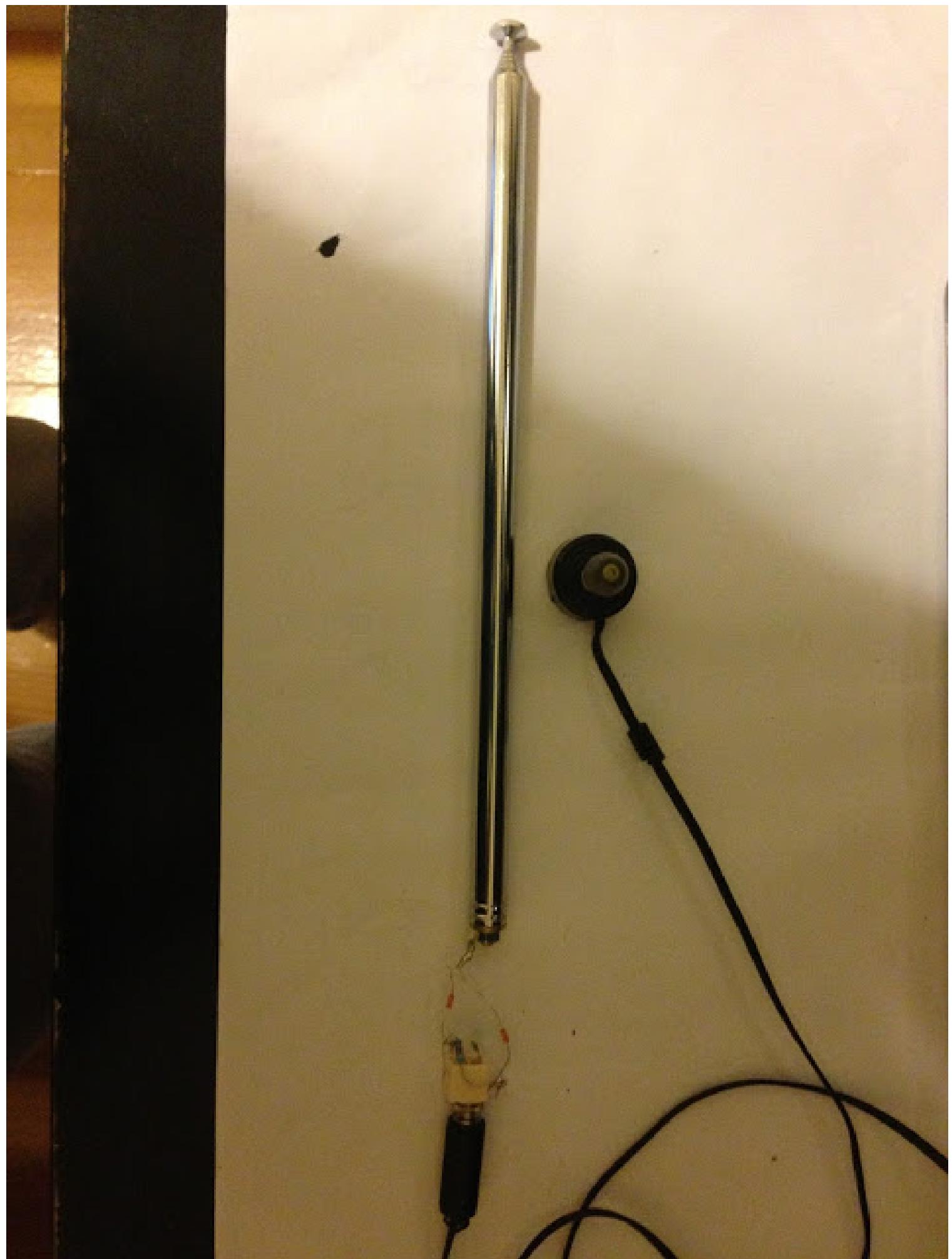






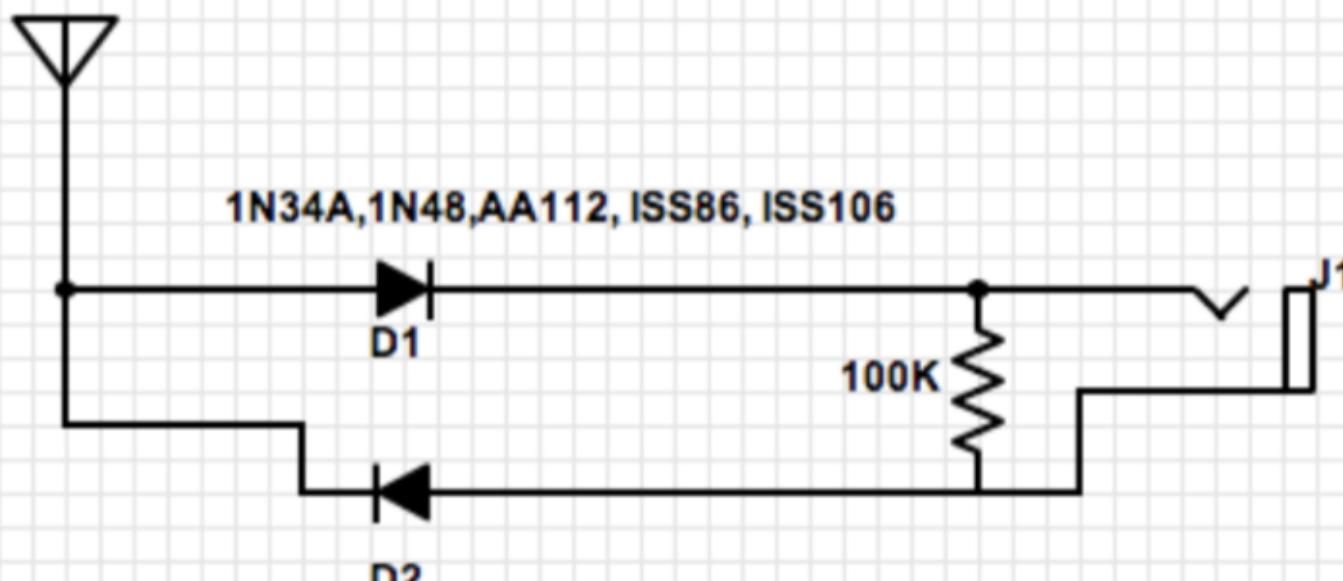




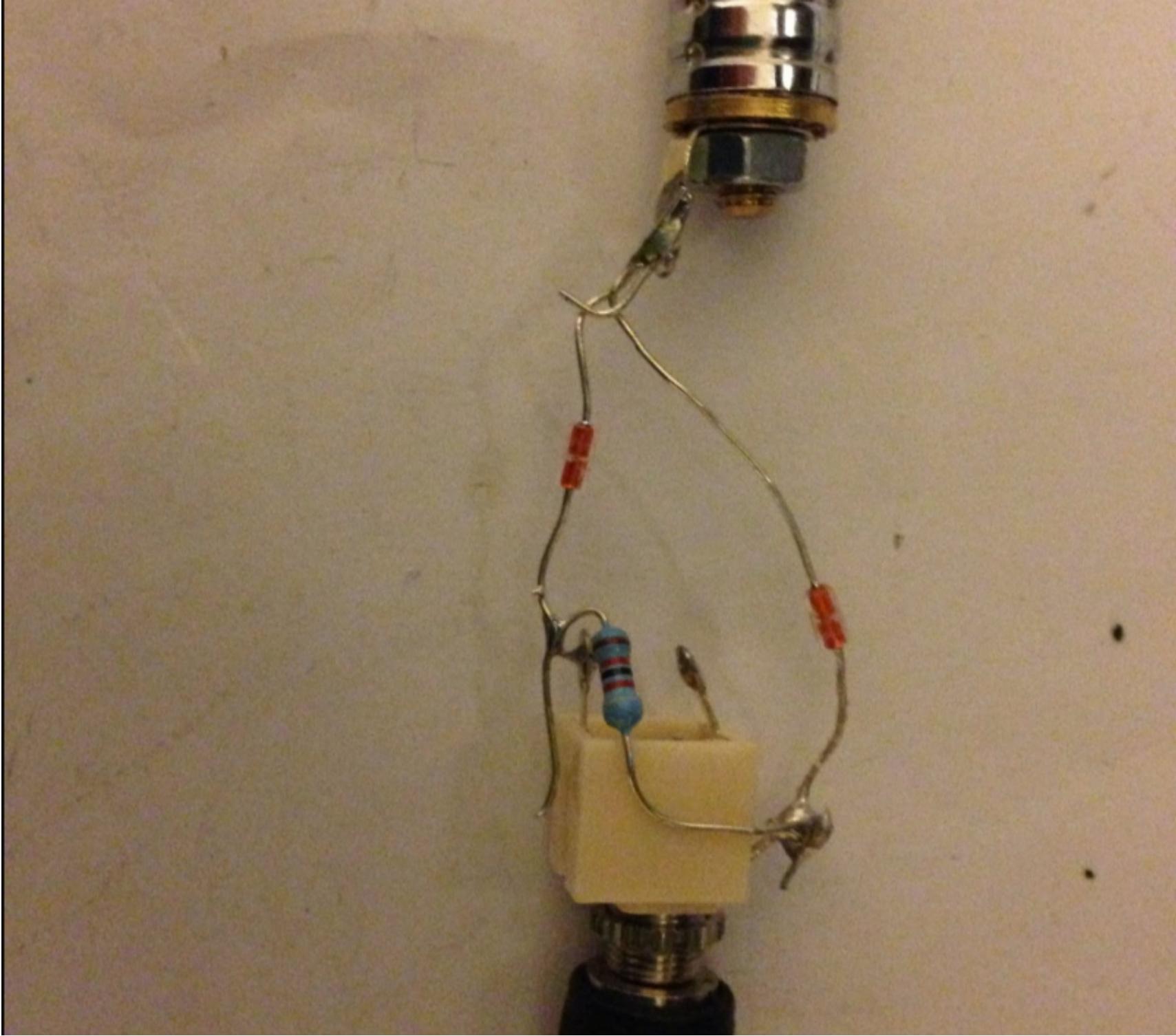


The simplest FM Crystal Radio Circuit - <http://billydiy.blogspot.hk>

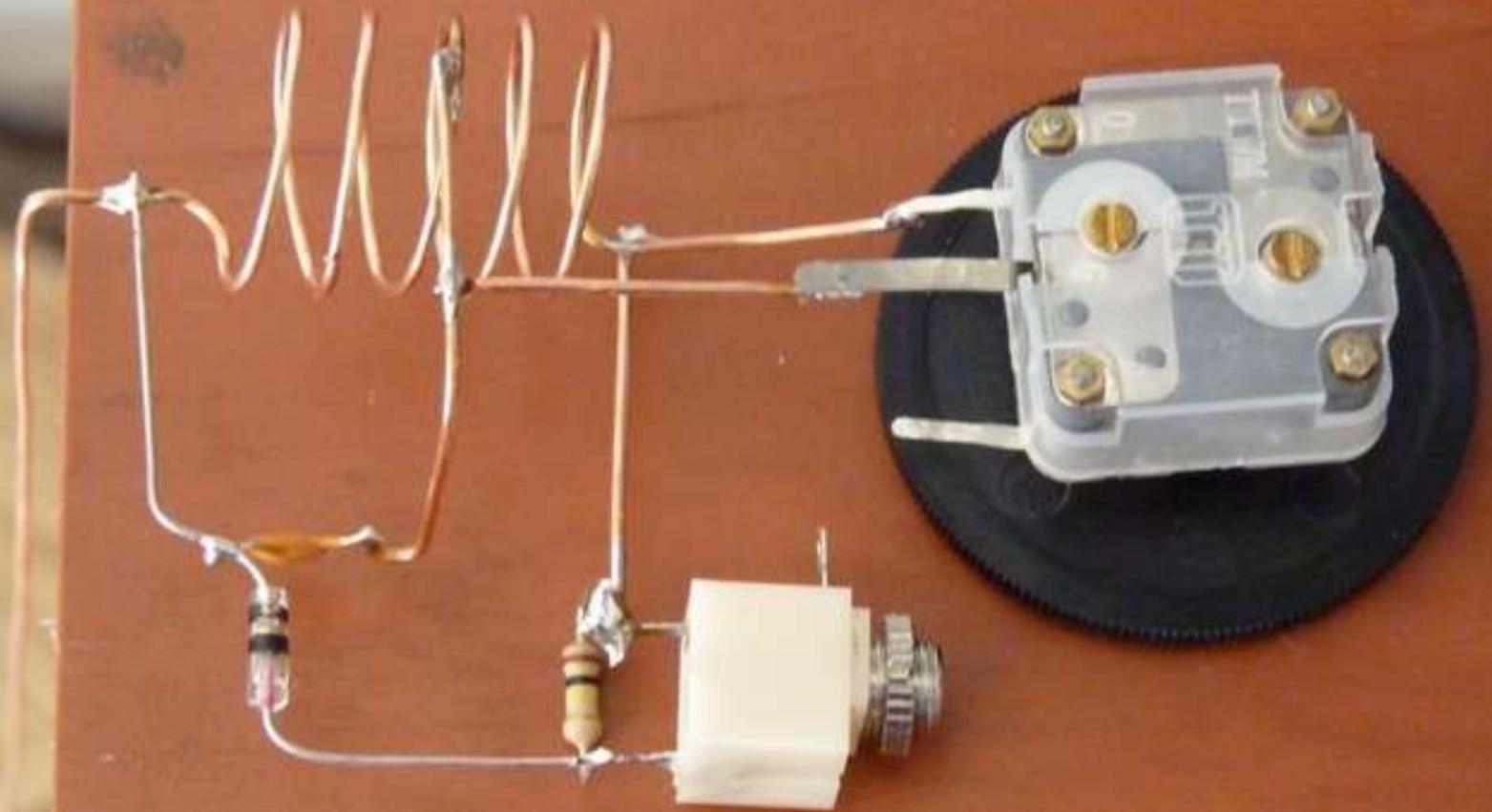
Antenna - Extendable Radio 1.8 meter. That also serves as tuning



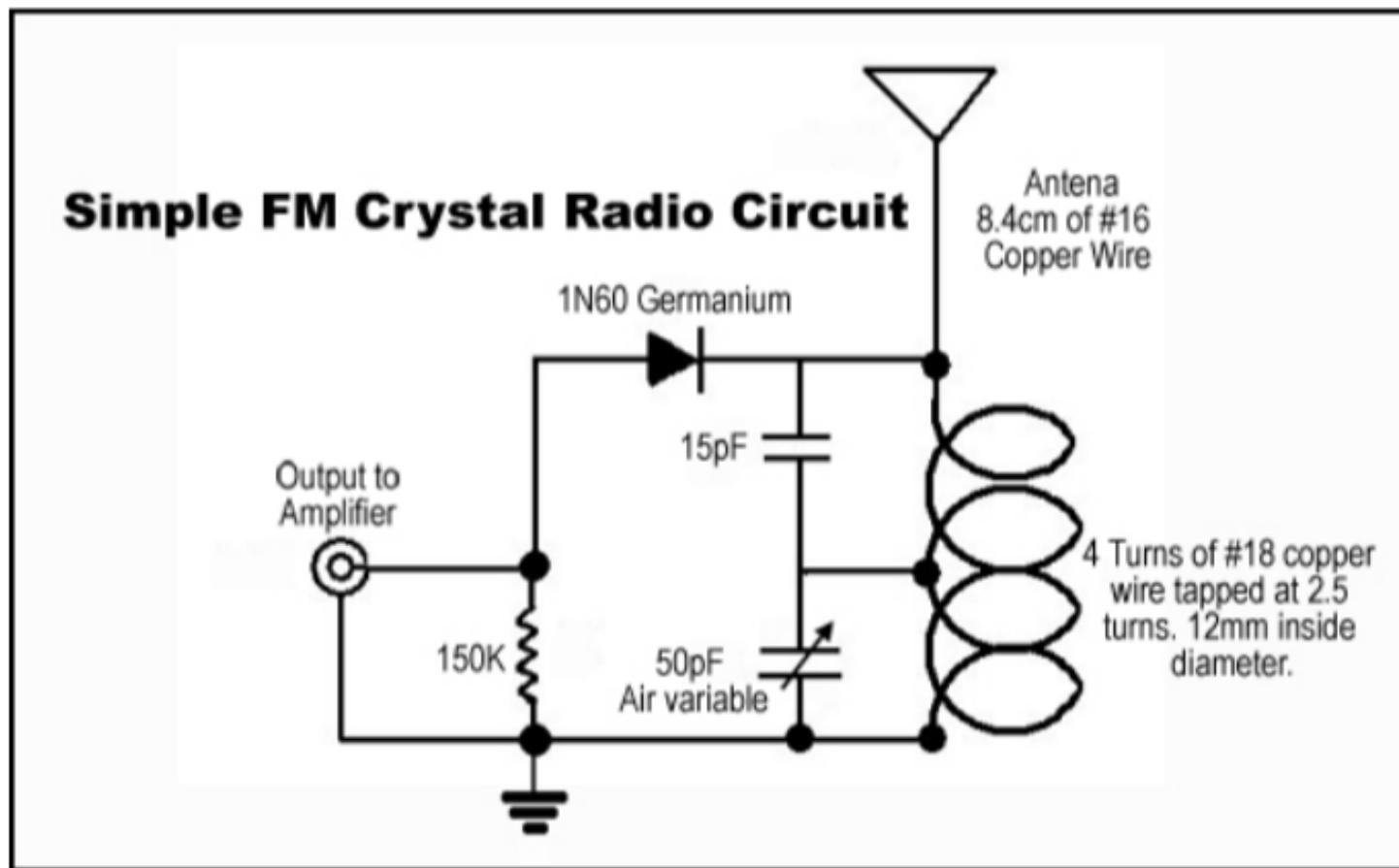
3.5mm Mono earphone Jack for Crystal earphone







FM Crystal Radio Circuit

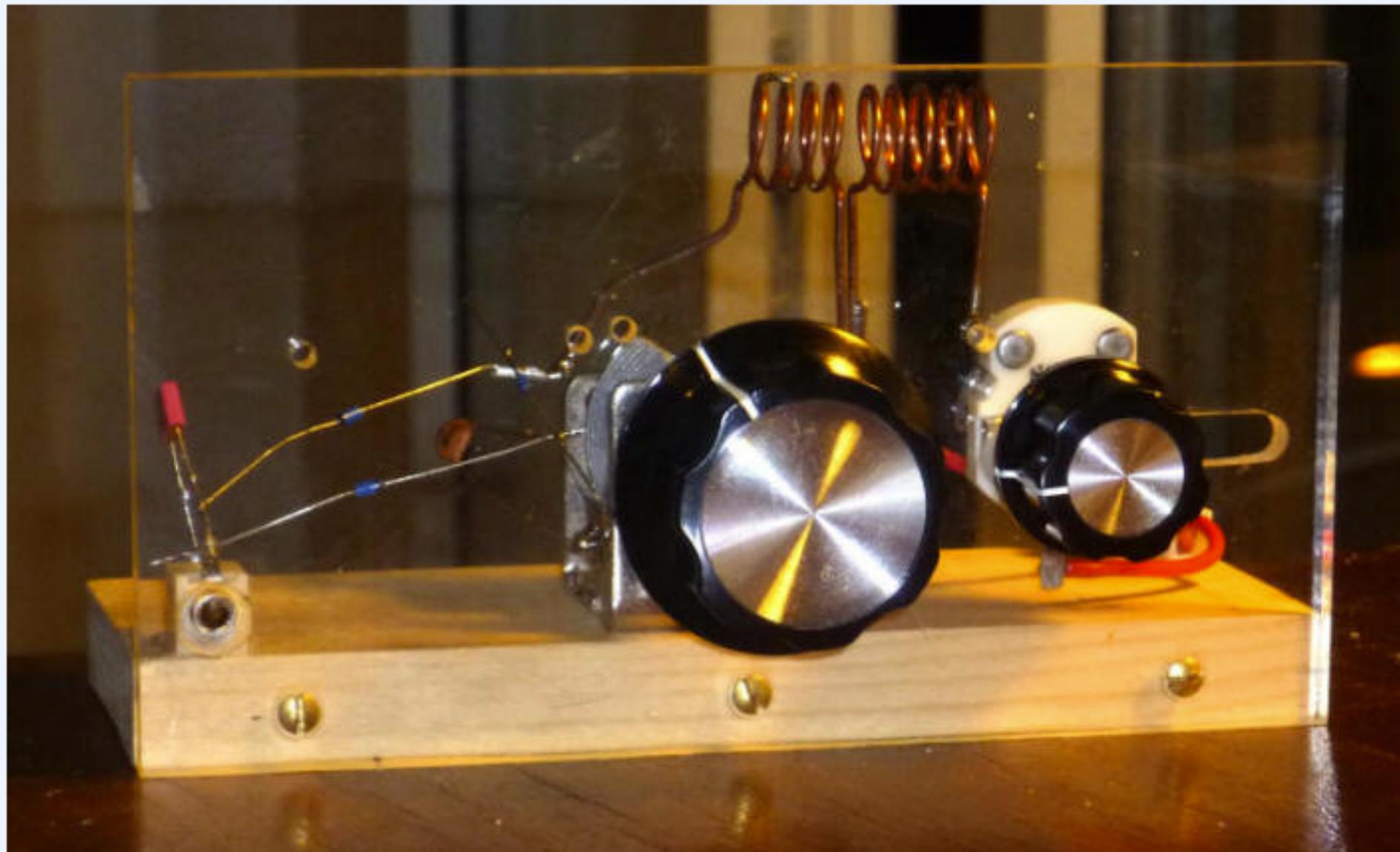


Parts List (some of these parts you can buy from our online store):

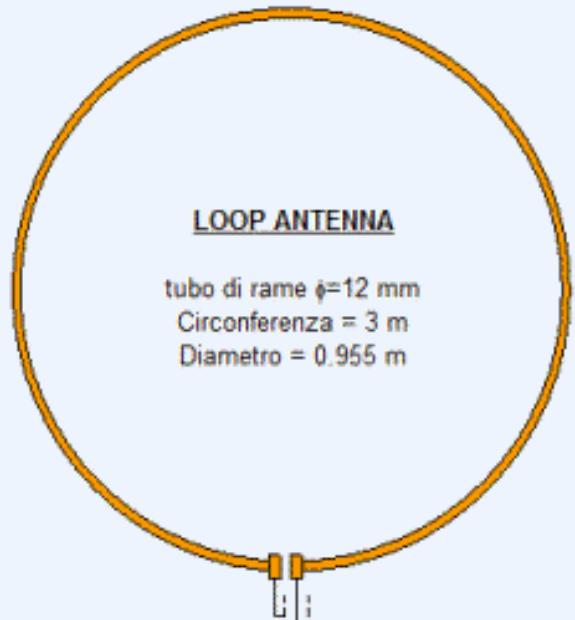
- 1N60 Germanium Diode
- 15pF Ceramic Capacitor
- 50pF Variable Capacitor
- 150K Ohm Resistor
- #16 & #18 Copper wires

Ricevitore a cristallo per FM

Un progetto di [Giacomo Cavuoti](#)



Seguendo l'invito di Leonardo ho realizzato questo semplice ricevitore a cristallo per FM (fare clic sullo schema qua sotto per vederlo ingrandito).



LOOP ANTENNA

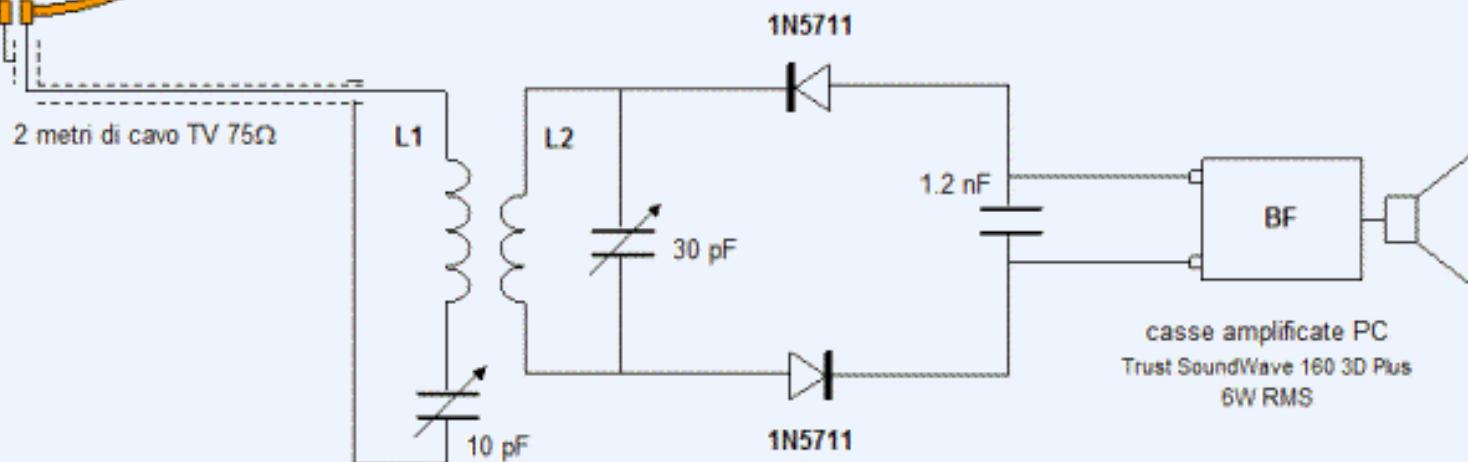
tubo di rame $\varnothing=12$ mm
Circonferenza = 3 m
Diametro = 0.955 m

L1

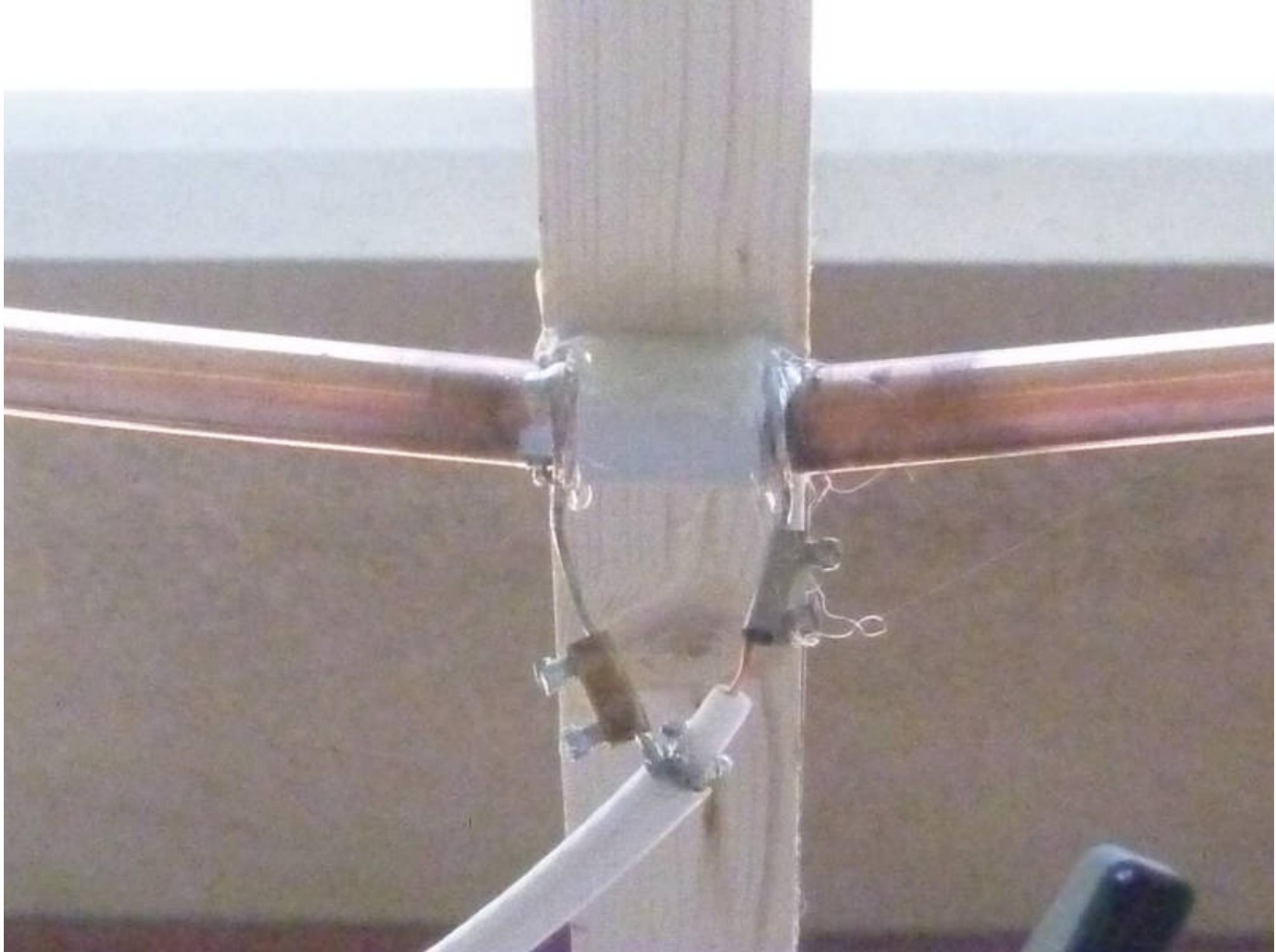
5 spire
 $\varnothing = 12$ mm
sp.fil = 1.4 mm
passo spira = 4.2 mm

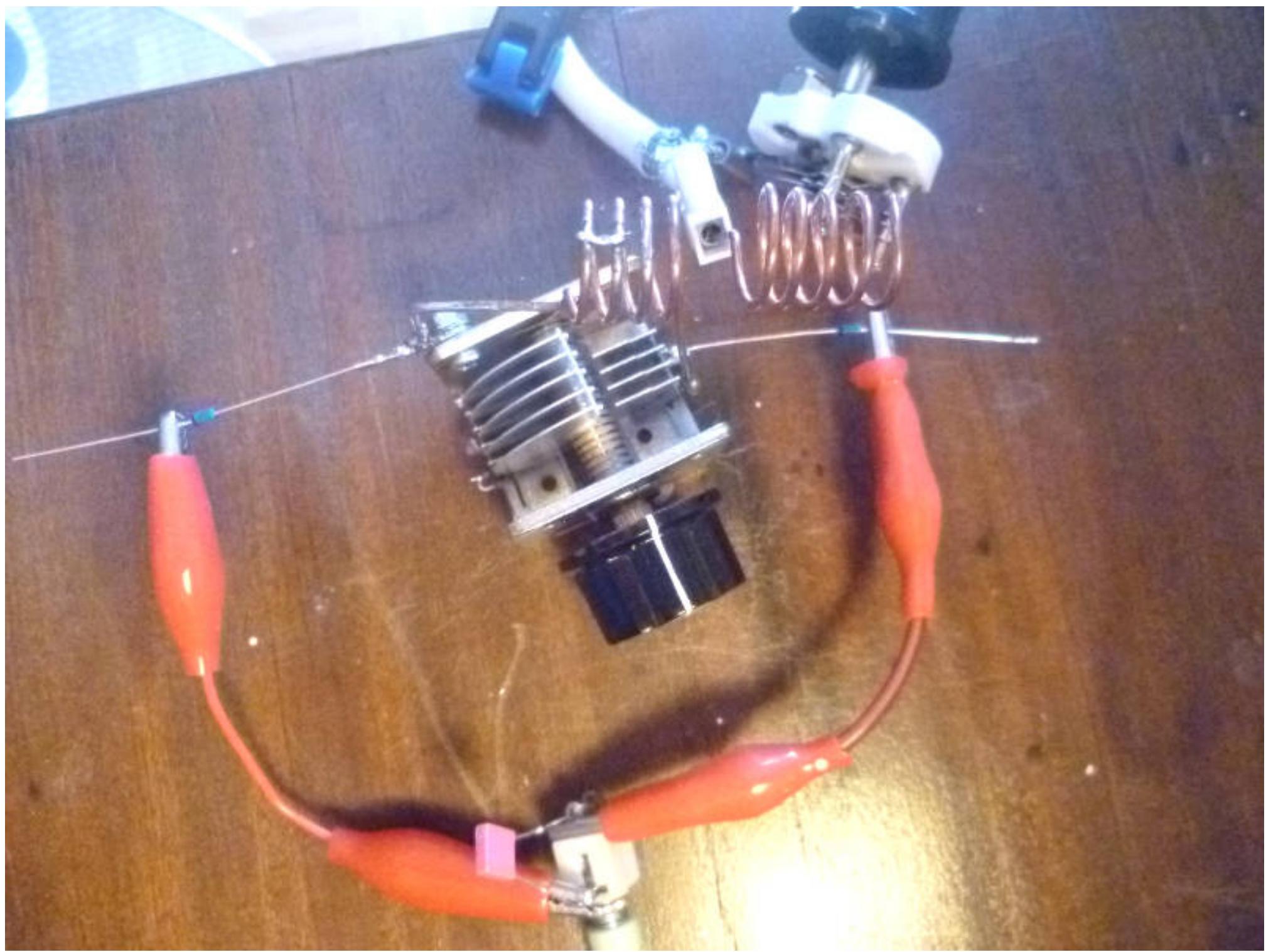
L2

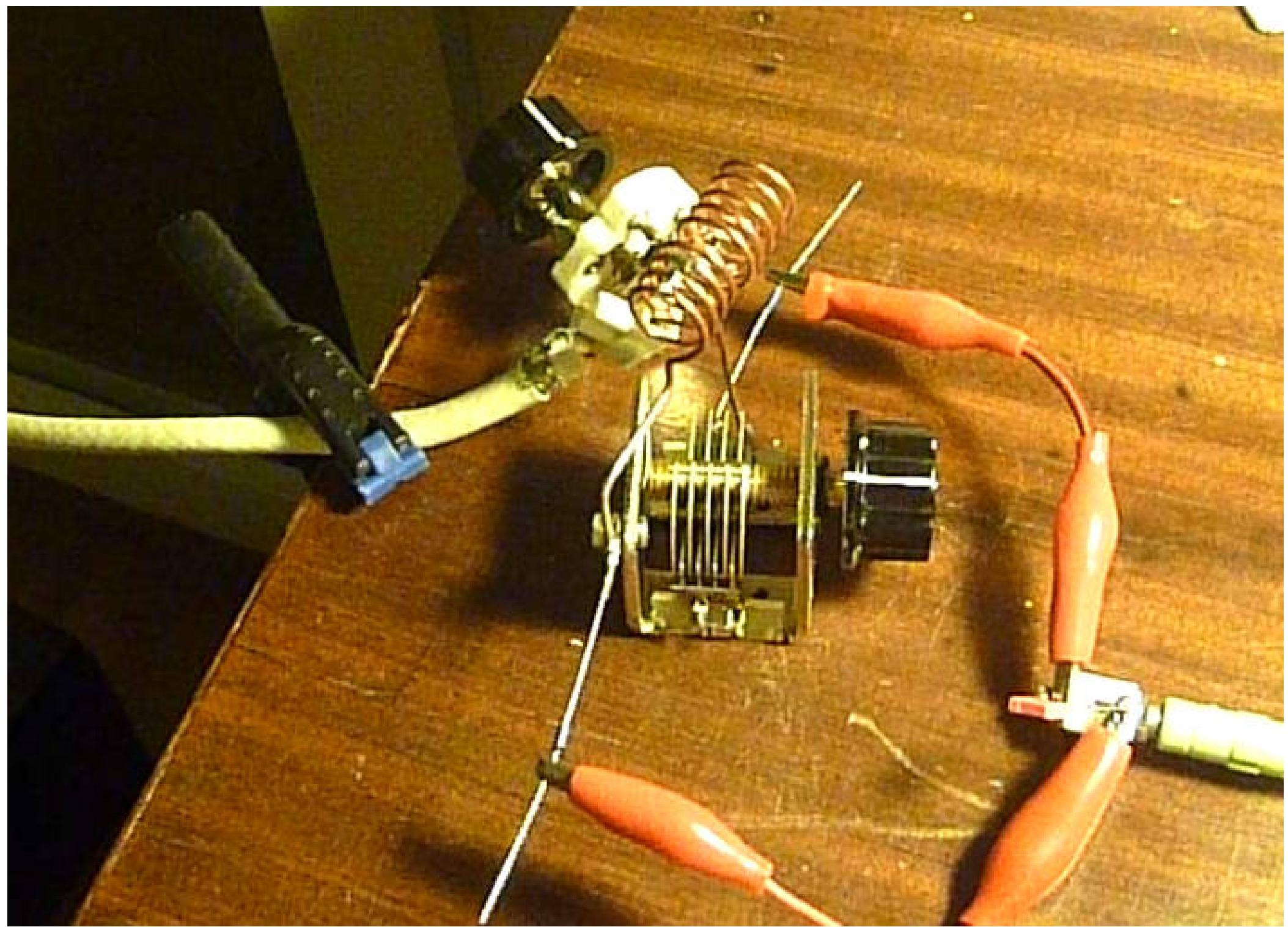
3 spire
 $\varnothing = 12$ mm
sp.fil = 1.4 mm
passo spira = 4.2 mm



The receiver is "powered" by a full wave loop antenna consisting of a single circular coil made of 3 meters of copper pipe for hydraulic systems (measured inductance of about 3 uH). The support is a simple 2-meter long fir-wood strip, 3 cm wide and 1 cm thick, to which the copper rim has been fixed with insulating tape. Another solution to realize the loop antenna in a simple and instantaneous way is to use an aluminum strip 2 mm thick and 2 cm wide. The detectors are two *Schottky* diodes type 1N5711, particularly suitable for VHF thanks to the low capacity (about 2pF). They are currently in production and therefore easy to find. The receiver was tested in a "stiff" situation with the antenna exposed in a recessed balcony (3 x 1.6 meters) on the fourth floor of a 6-storey reinforced concrete building surrounded by other buildings constructed of reinforced concrete walls. As you can see and hear from the two videos I uploaded on Youtube:





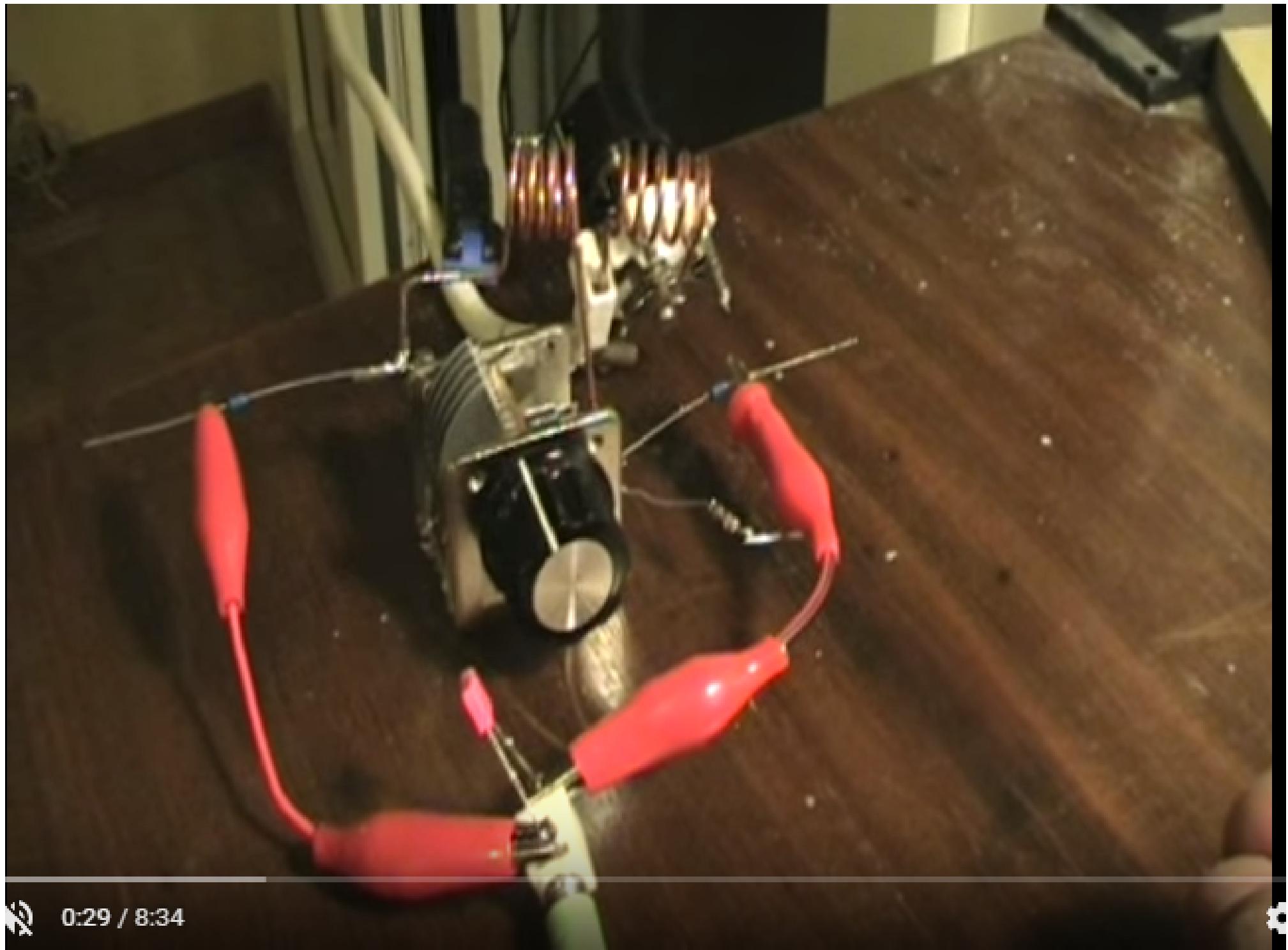




0:01 / 8:34

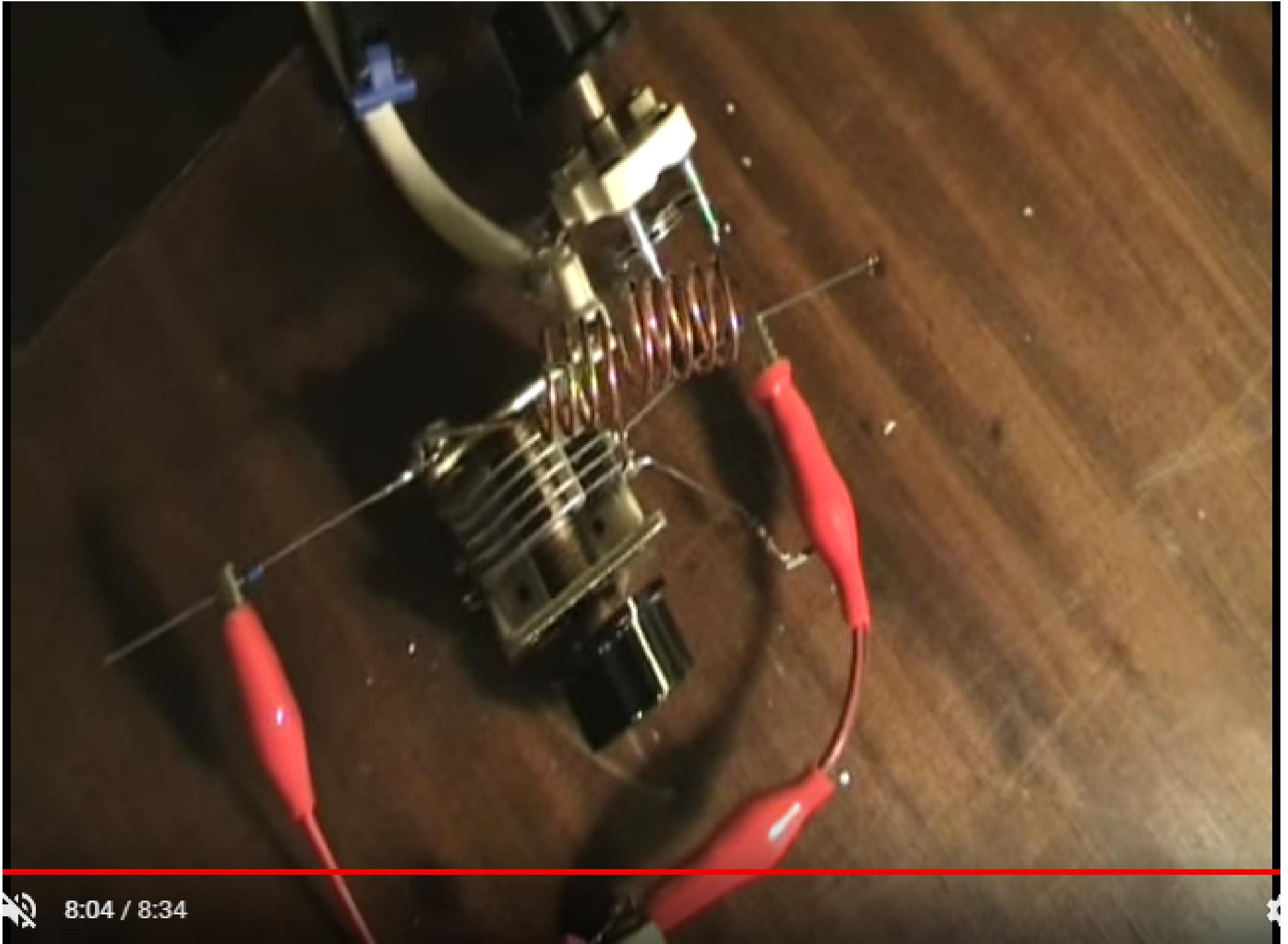


GalenaFM1



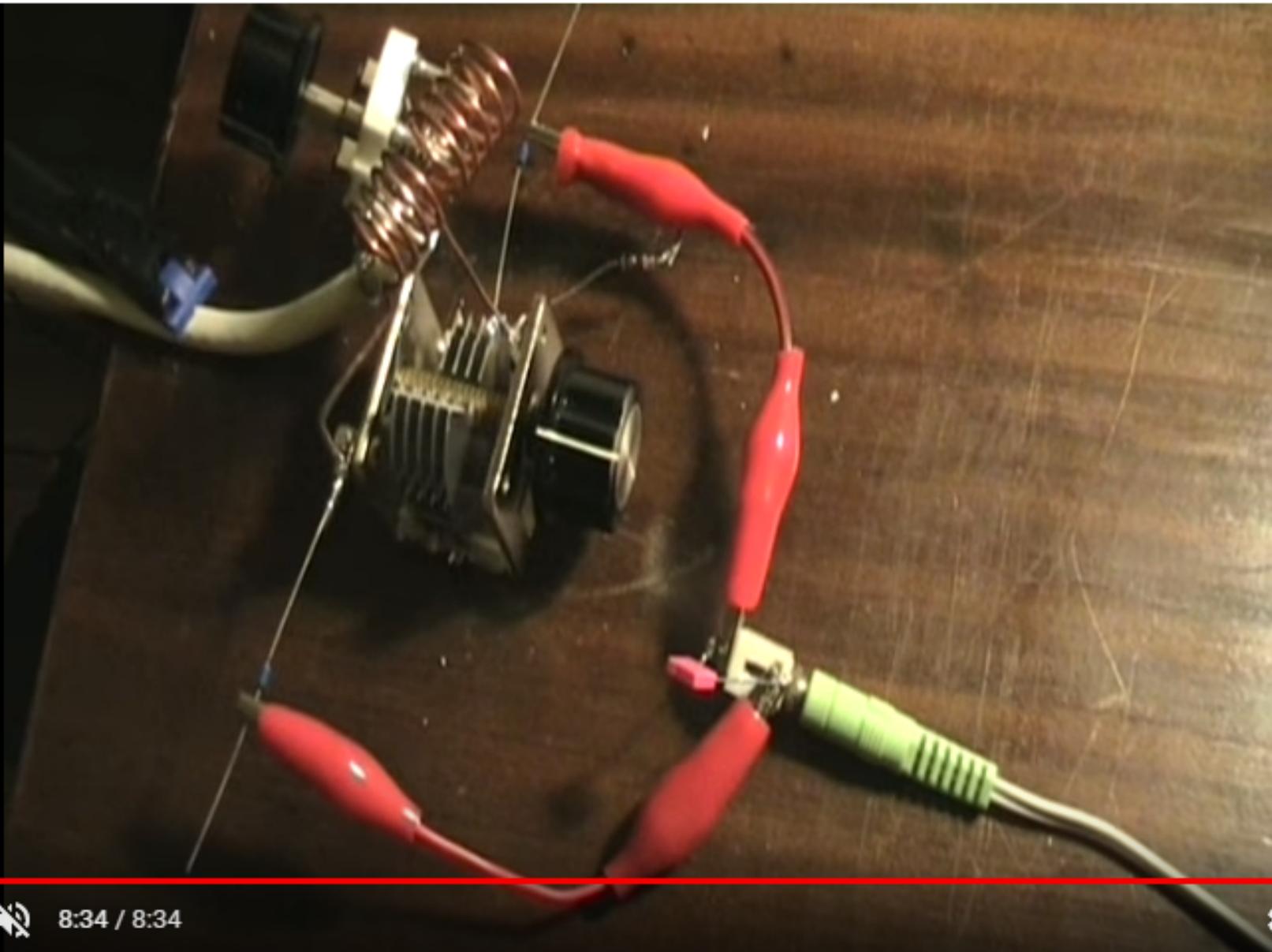
0:29 / 8:34





8:04 / 8:34



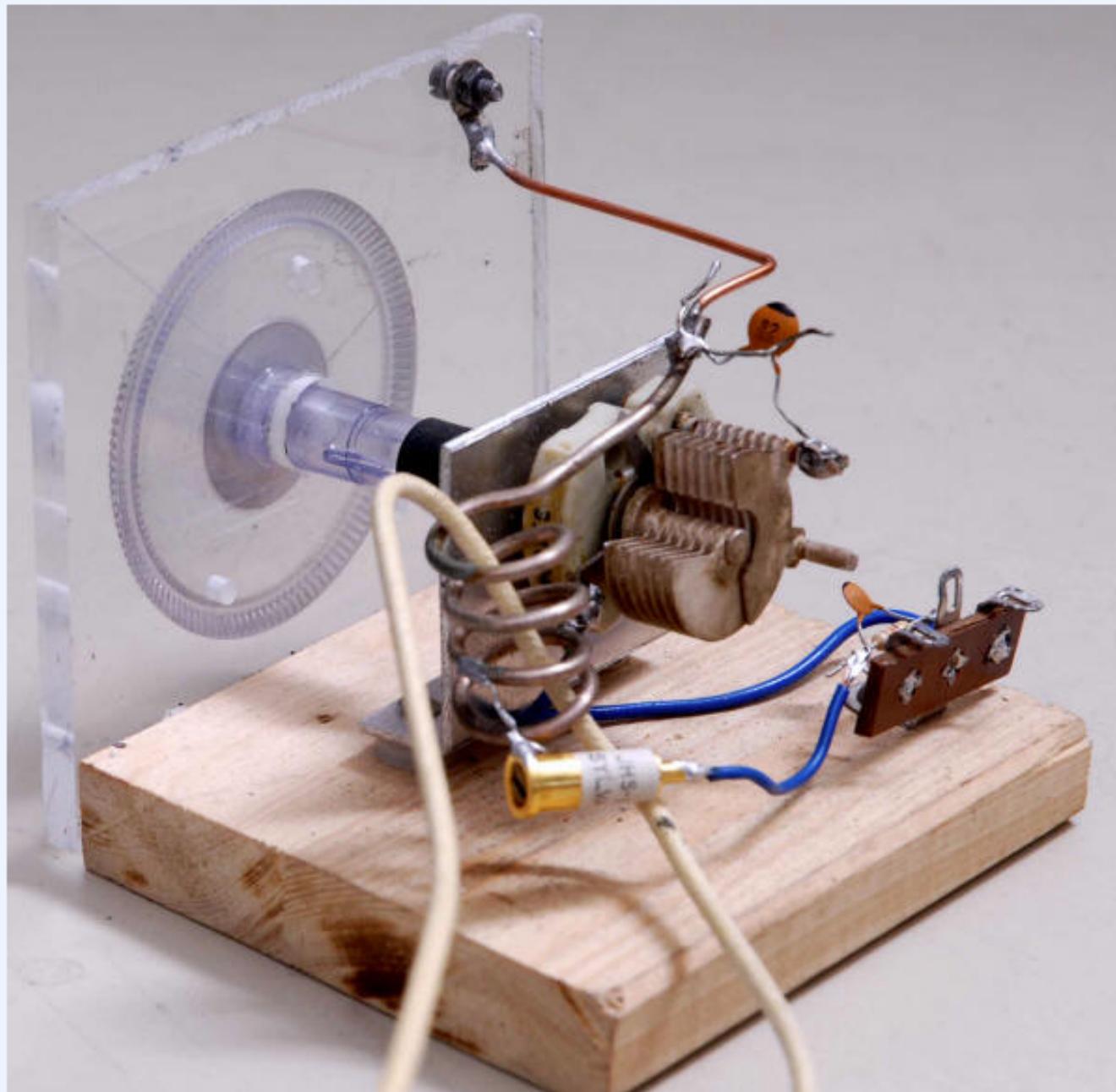


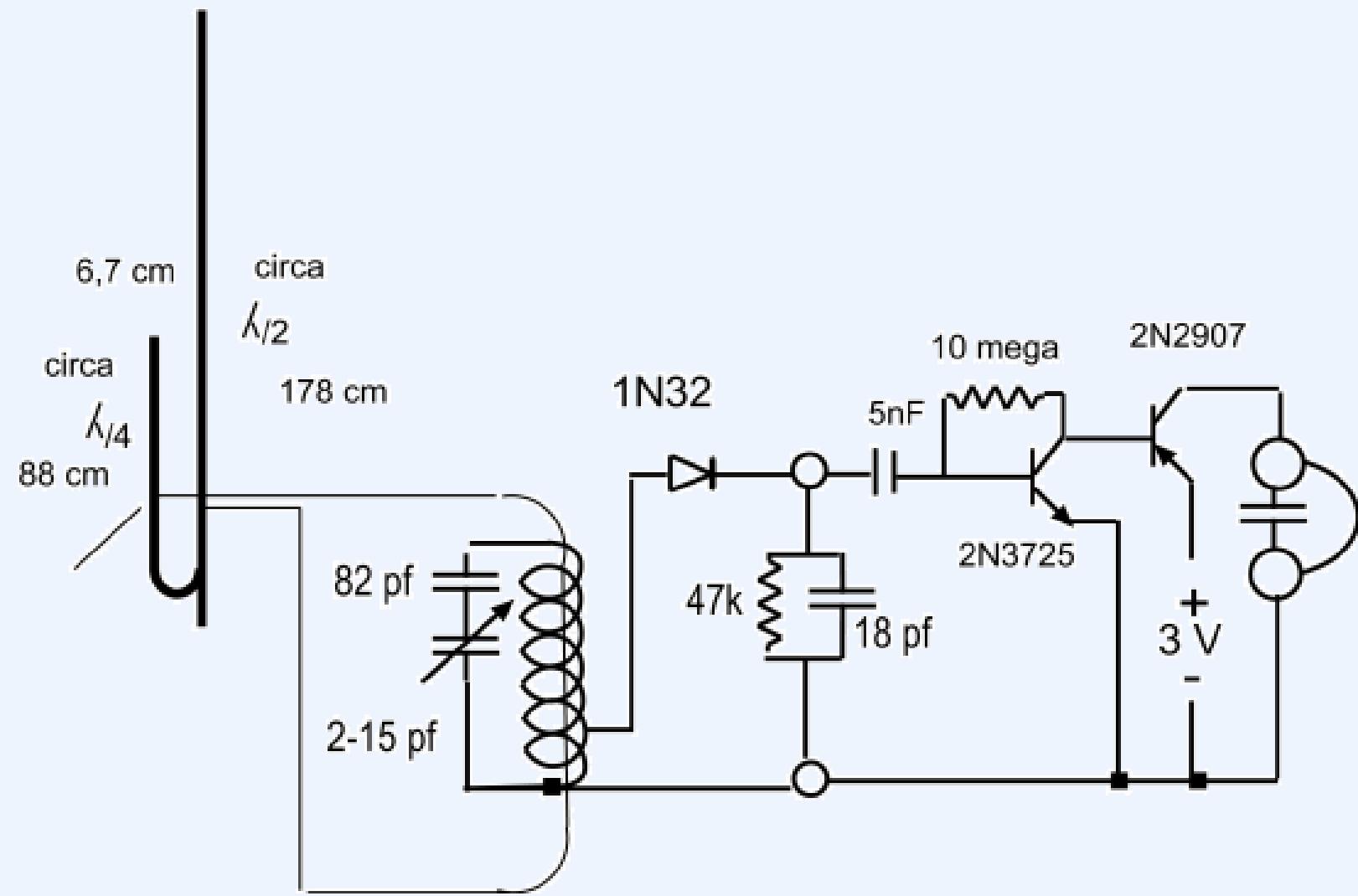
8:34 / 8:34



Simple crystal receiver for FM

[Carlo Bramanti](#)





The theory

Normal AM revelation can not reveal weak signals with the consequence that it is useless to amplify after the revelation, since it increases only the volume and not the sensitivity. Instead the detection of the FM also handles very weak signals: therefore, amplifying after the detection, all the weakest stations appear. The amp that I made amplifies a lot (in AM it also acts as a detector, but in FM it must be preceded by a diode); it can be powered by a 3 V lithium drain and it consumes very little: it is even sufficient to disconnect the earphone for almost zero consumption. This makes the use of a switch superfluous.

J antenna

It is an antenna that is easy to realize by bending a copper pipe by fontaniers, with a diameter of 6 o 8 mm. Fixing to a pole or base does not require isolation.

The diode 1N32

I obtained an additional advantage by replacing the germanium diode OA85 with the one with contact tip silicon 1N32, a little old but available and used as a mixer for the K band.

NOTE

In the aforesaid realization the frequencies from 88 to 104 Mc are listened with a rotation of the variable of only 45 degrees, or half of the excursion. Above I hear nothing.

The excursion with trimmers and padders should therefore be extended, while maintaining the optimal L / C ratio.

Realization:

Coil in silver wire from 2 mm.

Average diameter 14 mm

Length 19.5 mm

Number of turns 4

1 ½ coils outlet from the municipality

Ground connection not necessary

Radio a galena FM

per la “banda commerciale” 88 - 108 MHz



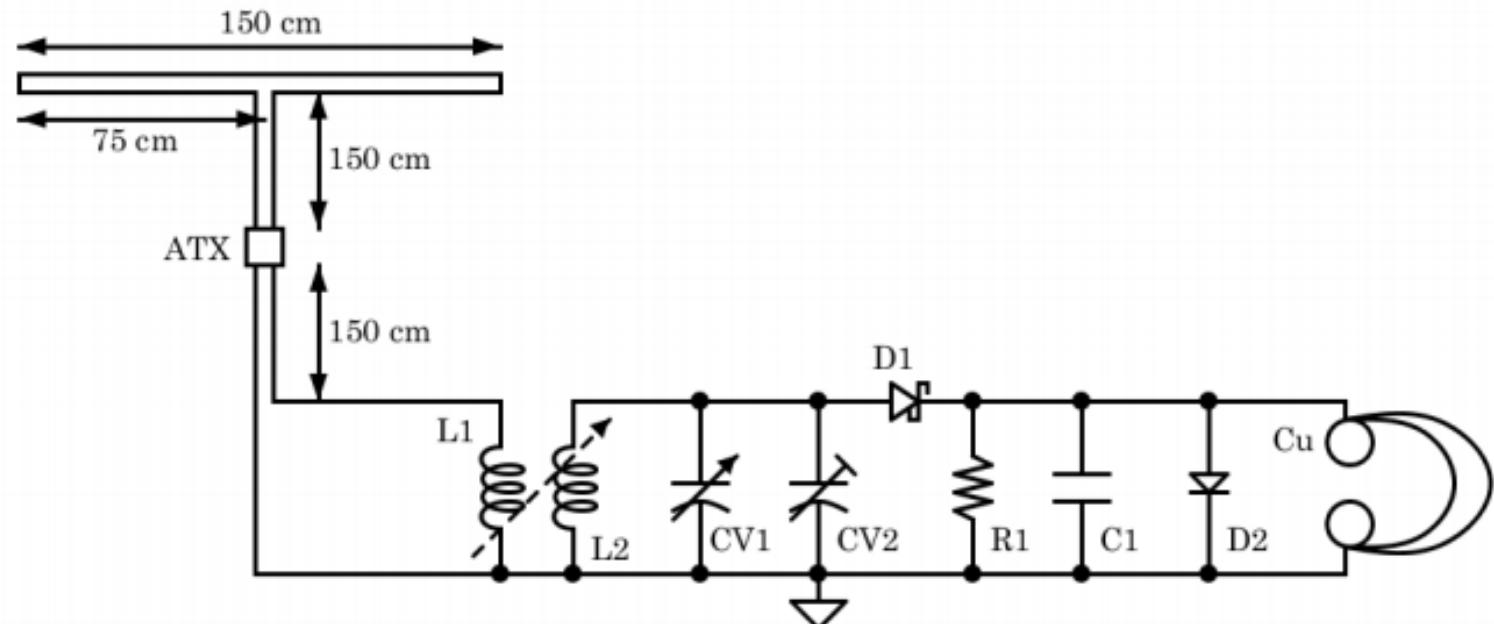


Figura 2: Schema elettrico della radio a galena FM.

I componenti adoperati sono:

- L1 = vedi testo (sezione Bobine L1 e L2);
- L2 = $0.137\mu H$, vedi Figura 7;
- CV1 = Johnson 160-211-1 ($2.7 - 10.8$) pF per sezione;
- CV2 = trimmer tubolare da $(5 \div 15)pF$;
- D1 = diodo Schottky Skyworks modello SMS7630-001;
- D2 = diodo di segnale 1N4148;
- R1 = $47k\Omega$, $1/4W$;
- C1 = $100pF$ ceramico a disco;
- Cu = cuffie ad alta impedenza ($2k\Omega$ o superiore);
- ATX = connettore ATX femmina e header pin;
- Due connettori banana femmina.

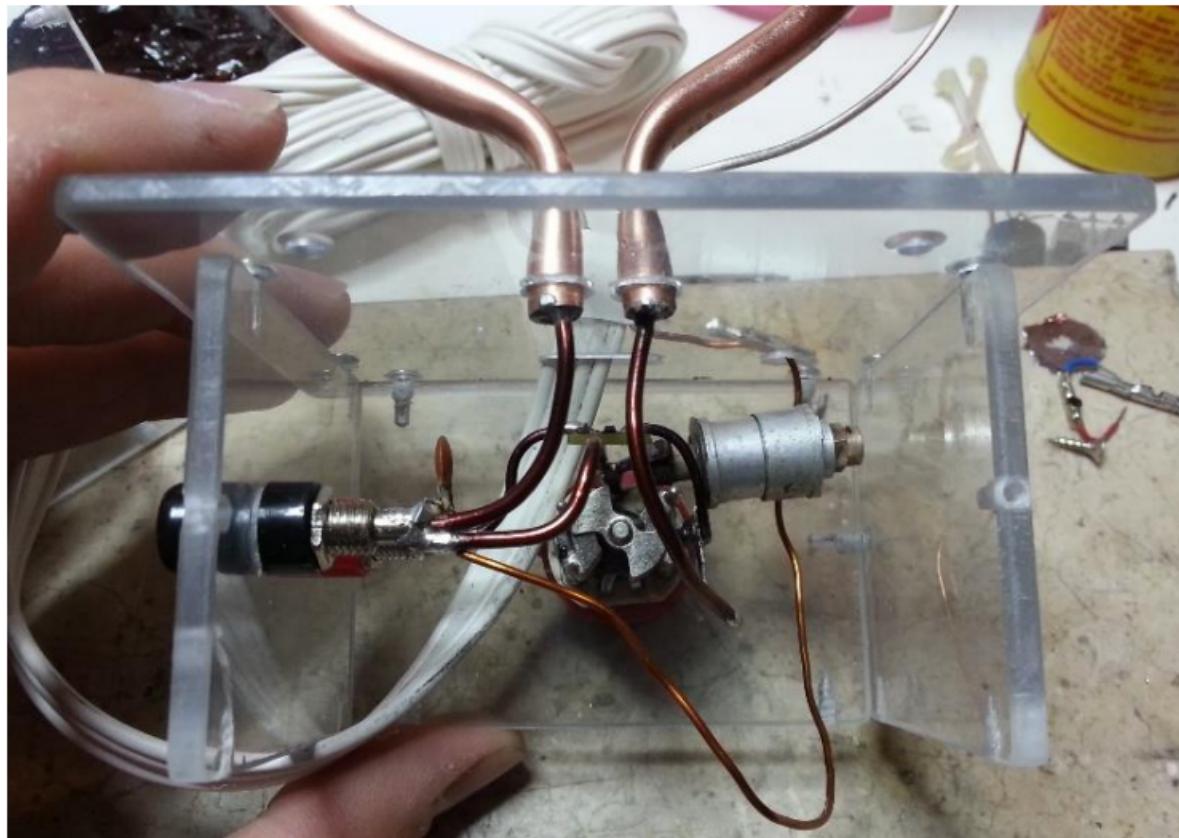


Figura 8: Vista posteriore del cablaggio

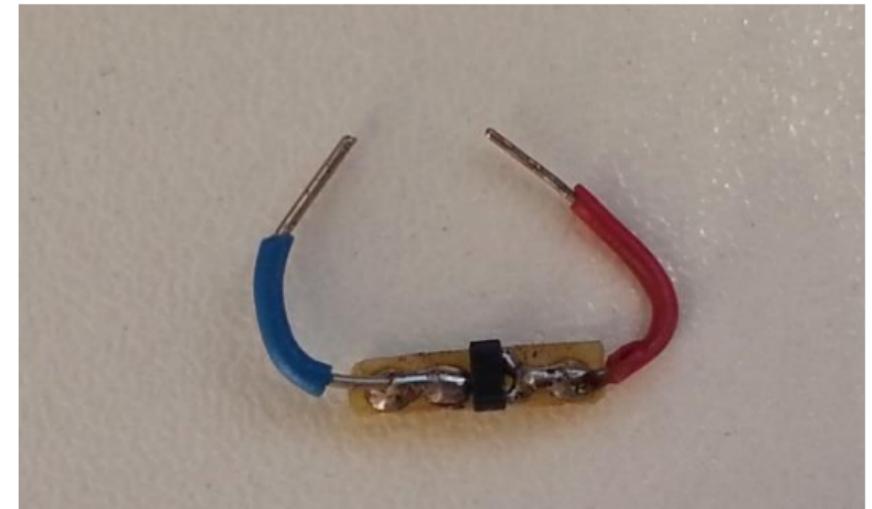


Figura 9: Particolare del diodo sulla basetta millefori.

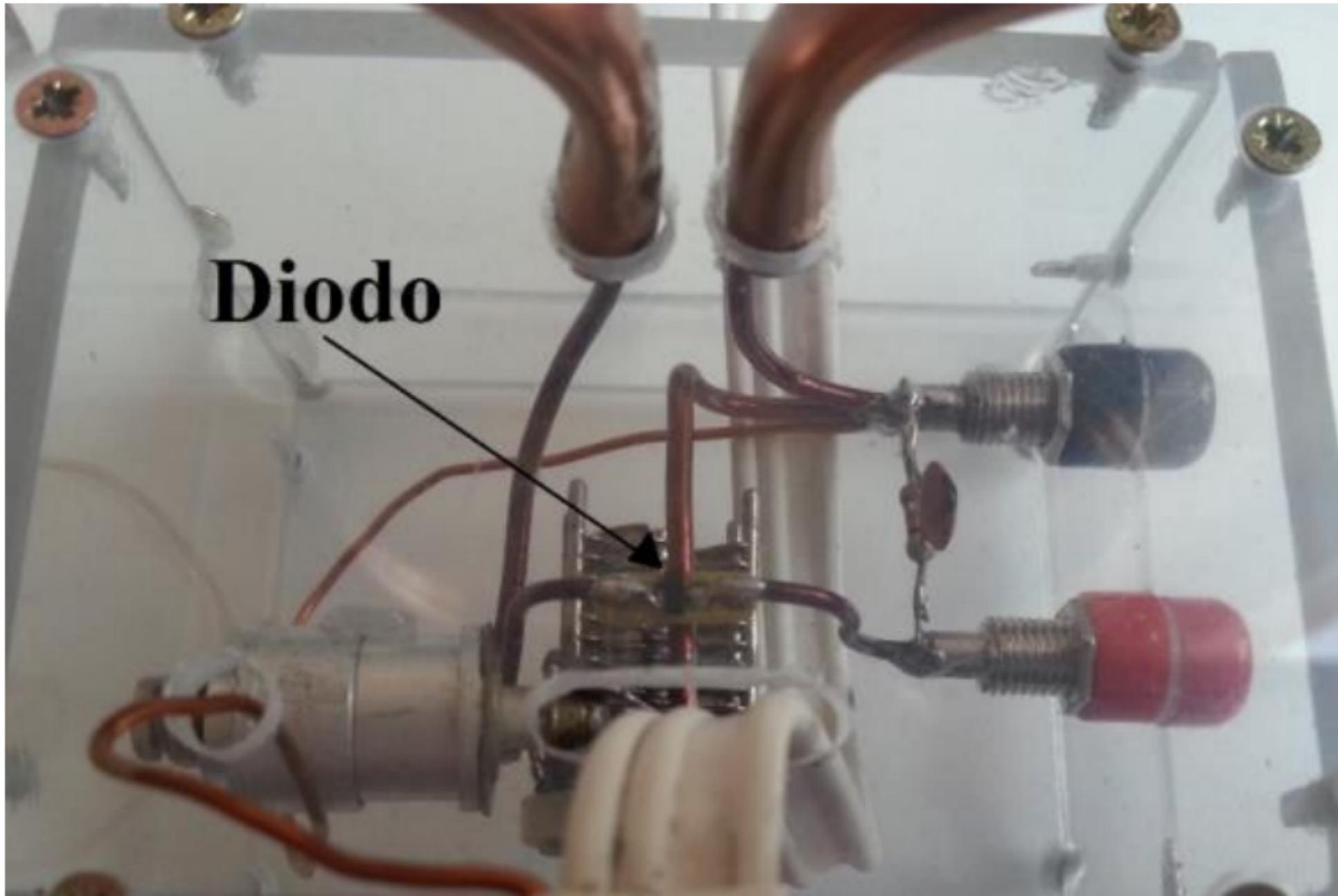
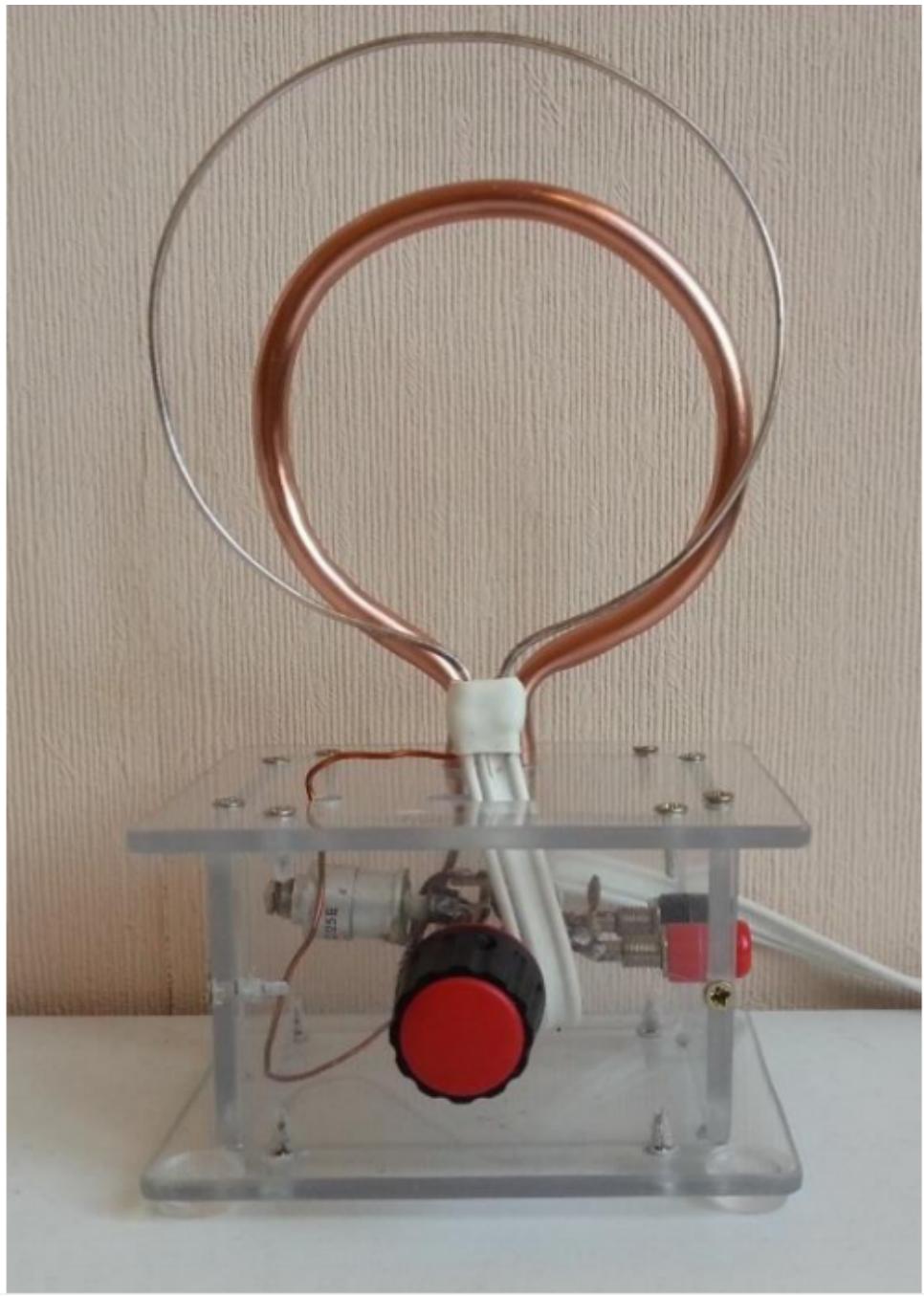
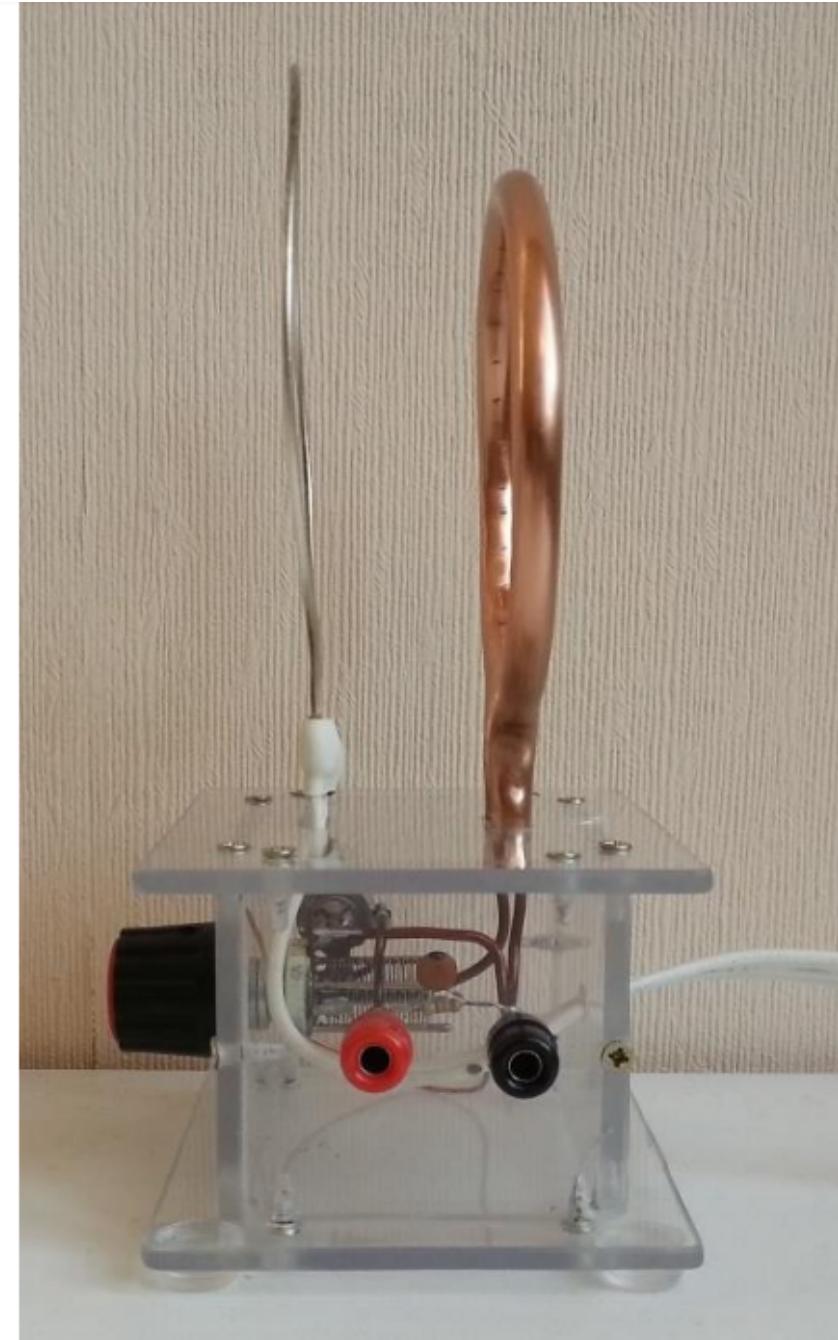
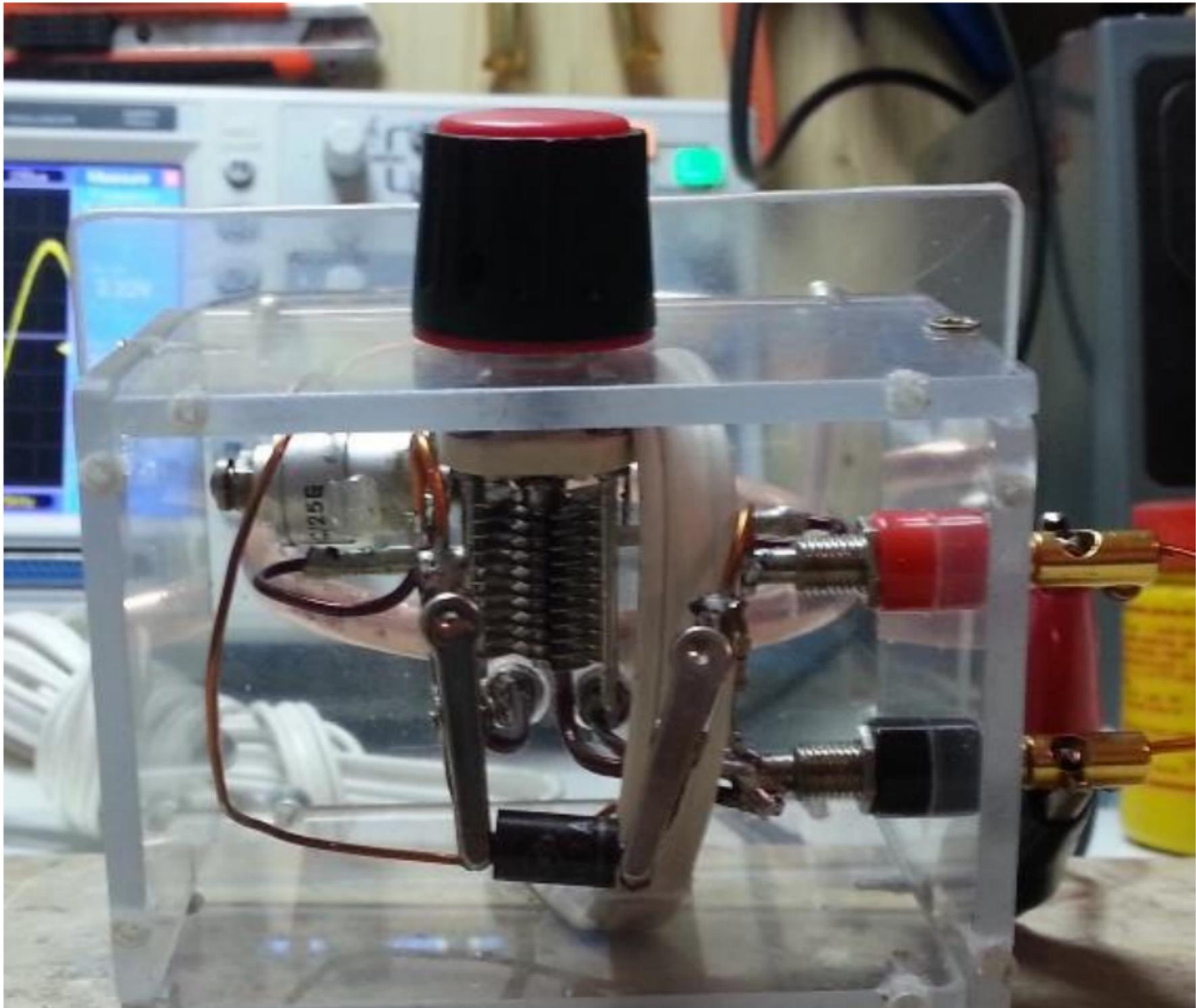
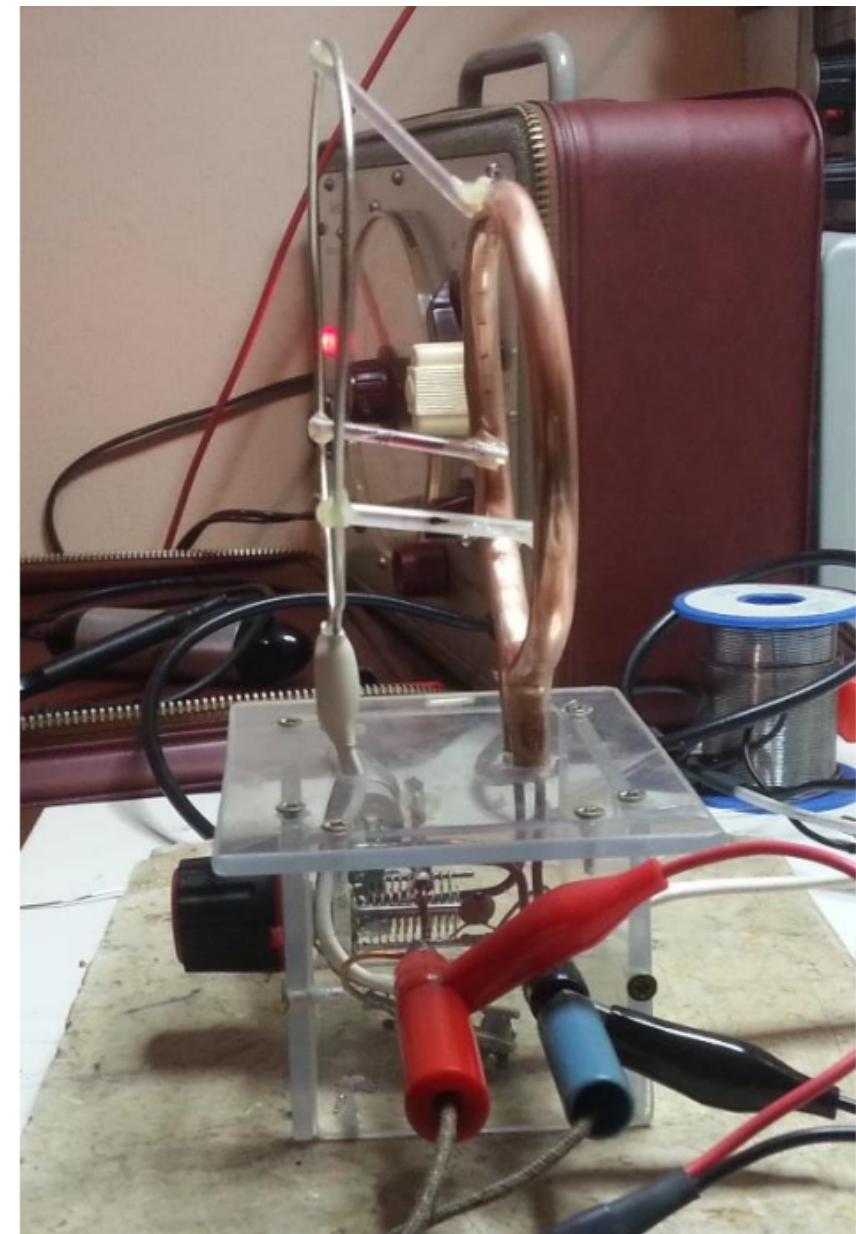
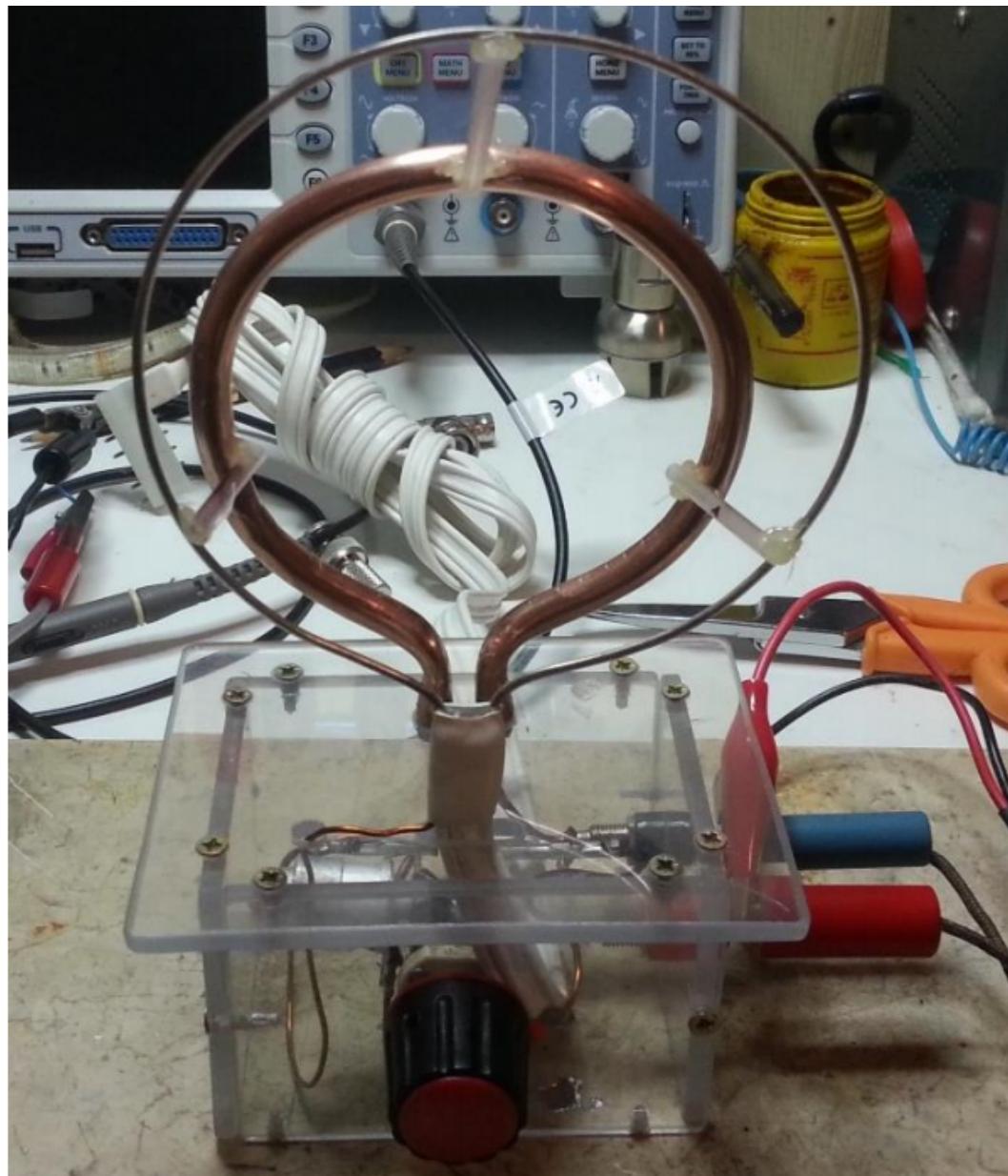


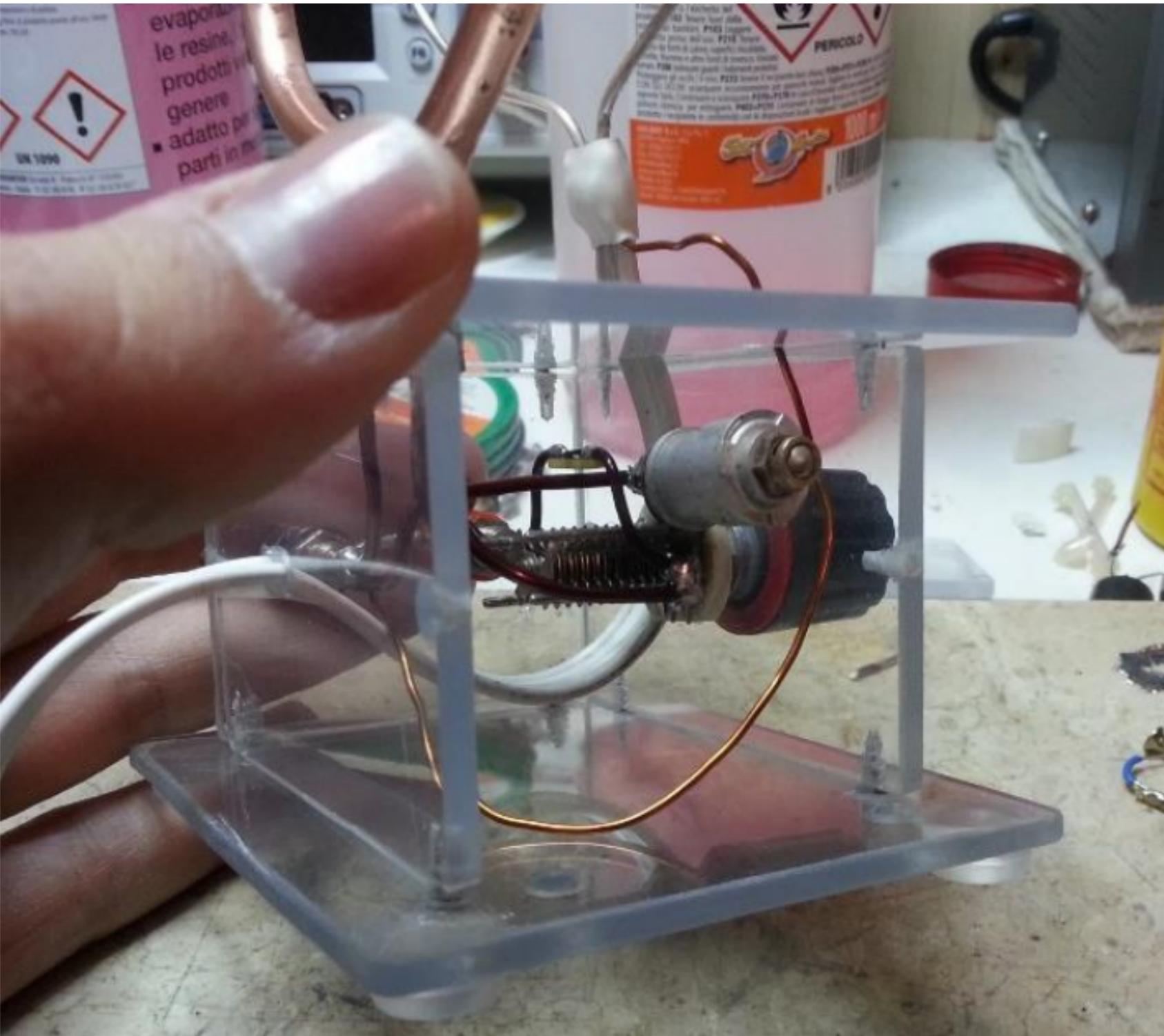
Figura 10: Cablaggio del diodo rivelatore.

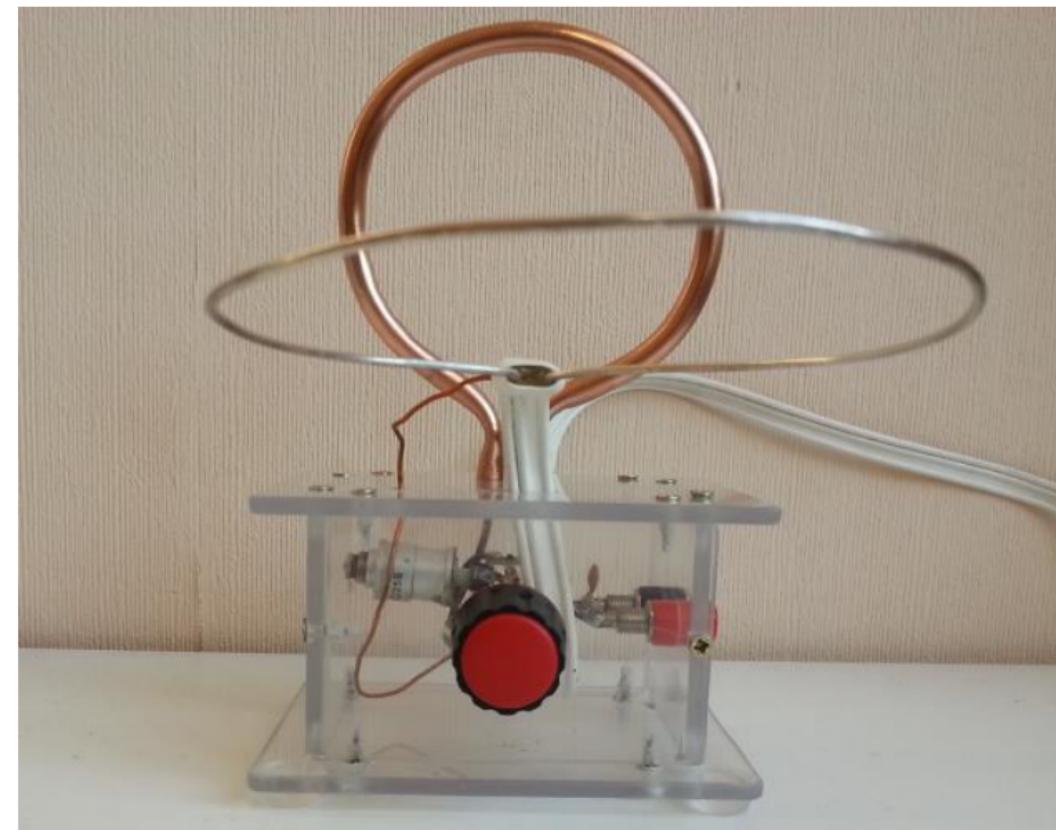
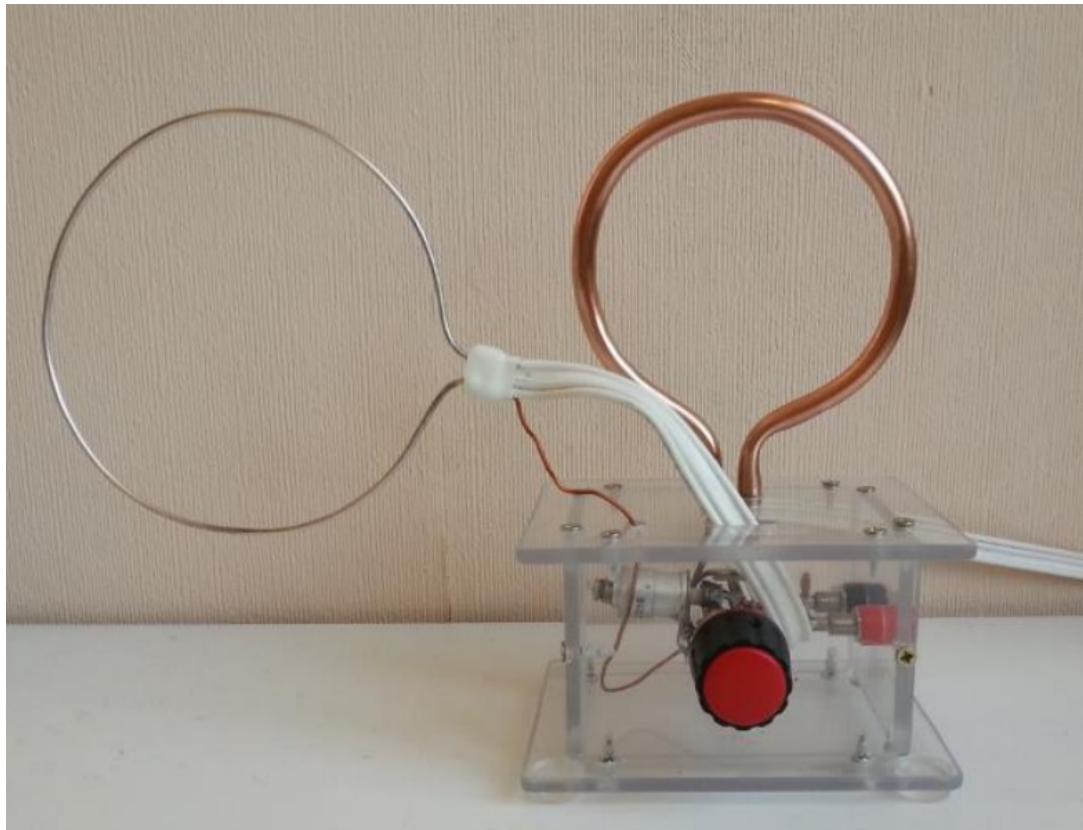


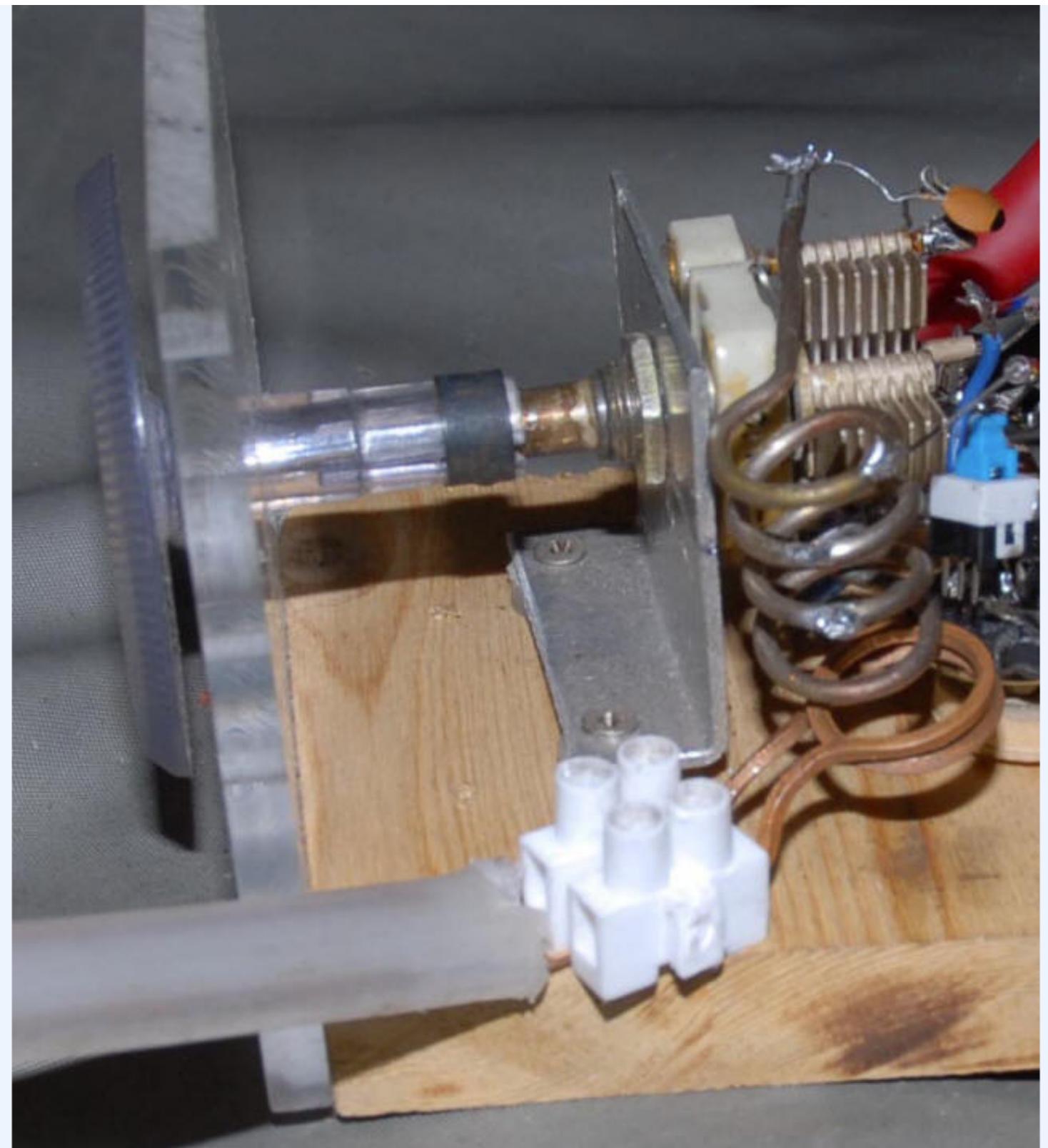


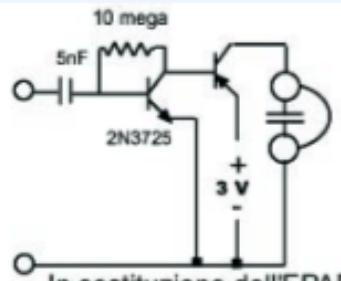




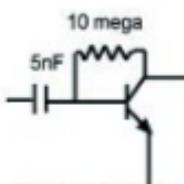




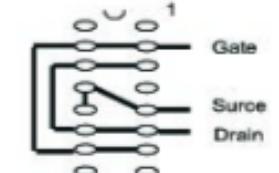
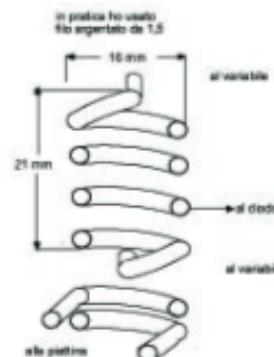




In sostituzione dell'EPAD: fa fortissimo ma occorre una pila



In sostituzione dell'EPAD,
ma richiede almeno 1 V
di alimentazione rubata



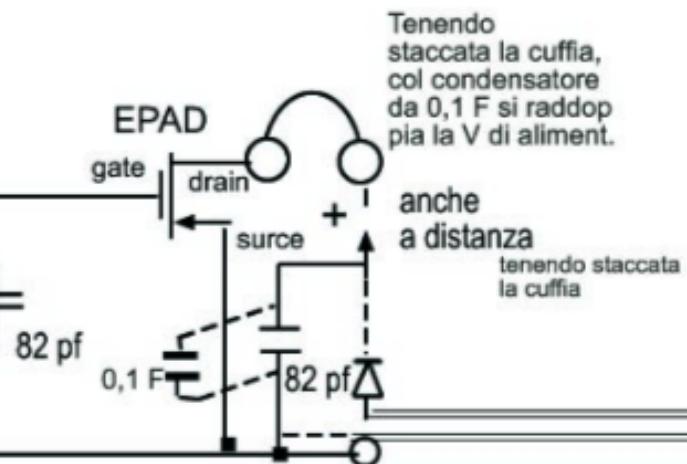
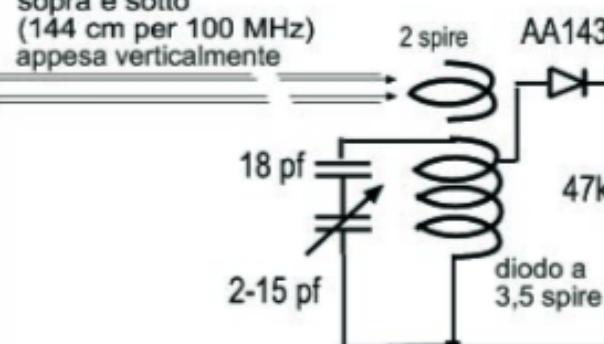
ALD110800 vista dal sotto



vista da sotto

NOTA
con un buon segnale
funziona senza amplificatore

piattina da 300 ohm
cortocircuitata
sopra e sotto
(144 cm per 100 MHz)
appesa verticalmente



Tenendo
staccata la cuffia,
col condensatore
da 0,1 F si raddop
pia la V di aliment.

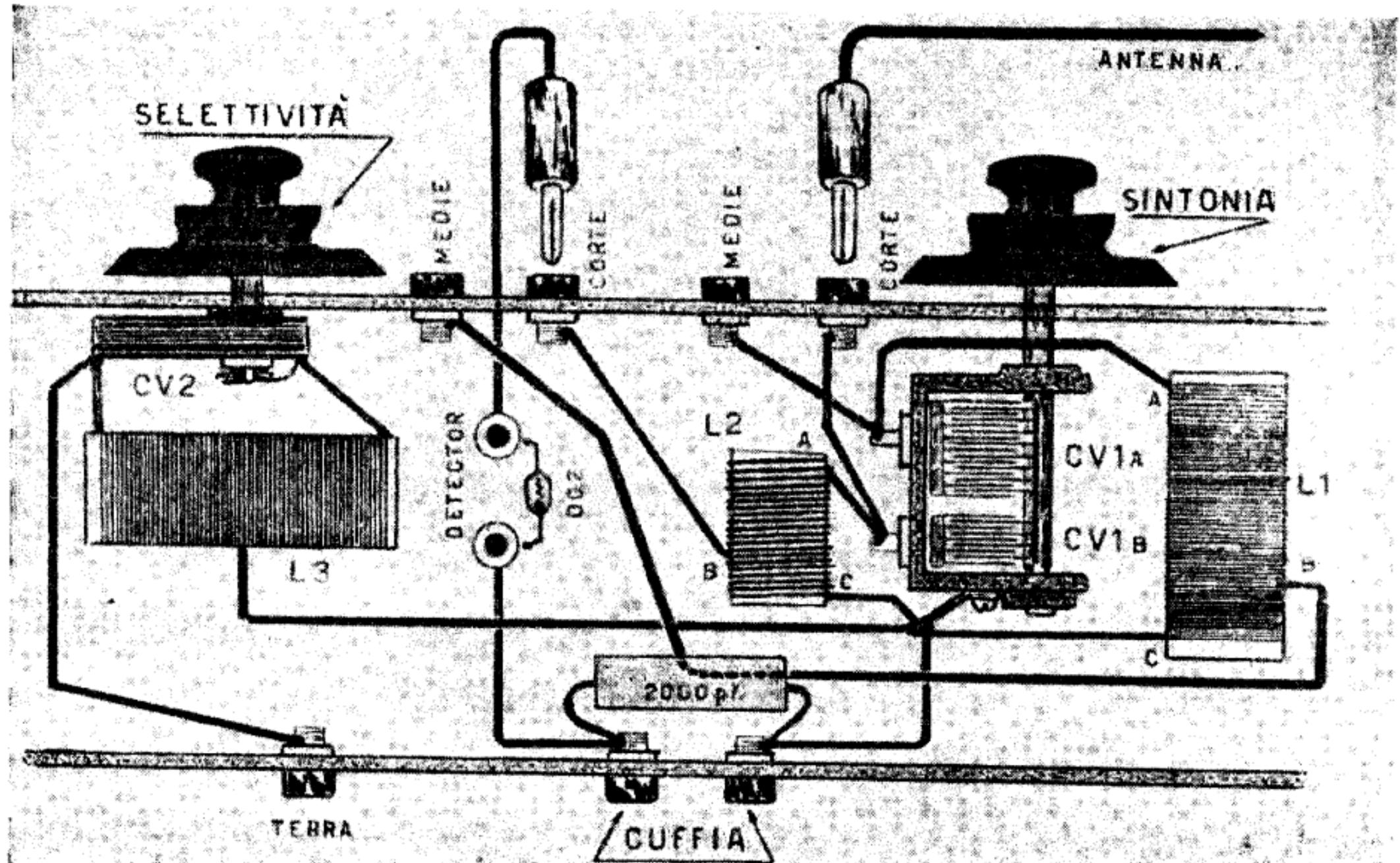
anche
a distanza

tenendo staccata
la cuffia

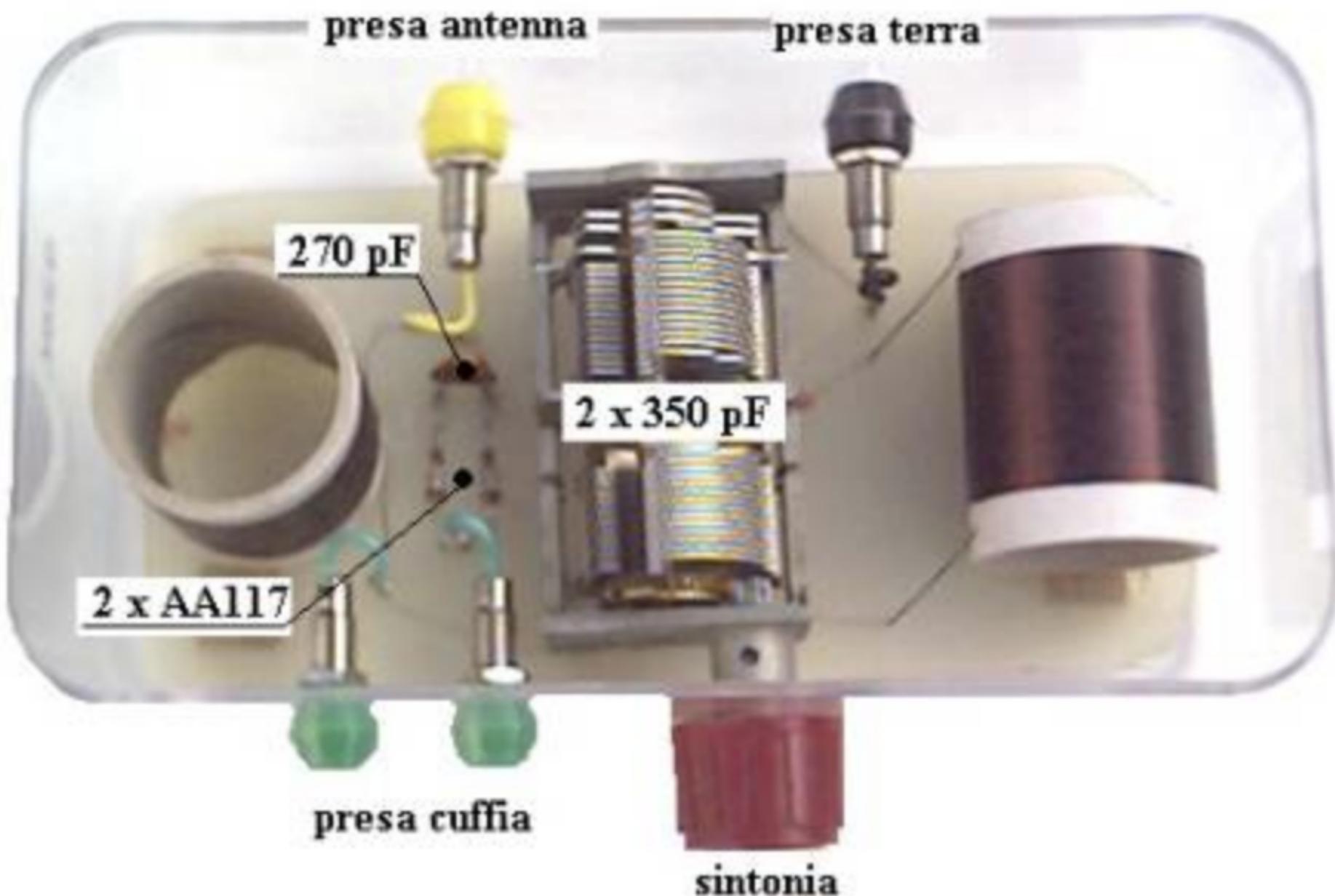
GALENA PER FM AD ALIMENTAZIONE RUBATA
L'EPAD si può trovare presso la MOUSER USA,
Monaco, Milano

La calata può essere
di piattina oppure il
diodo subito al dipolo
e poi due normali
conduttori

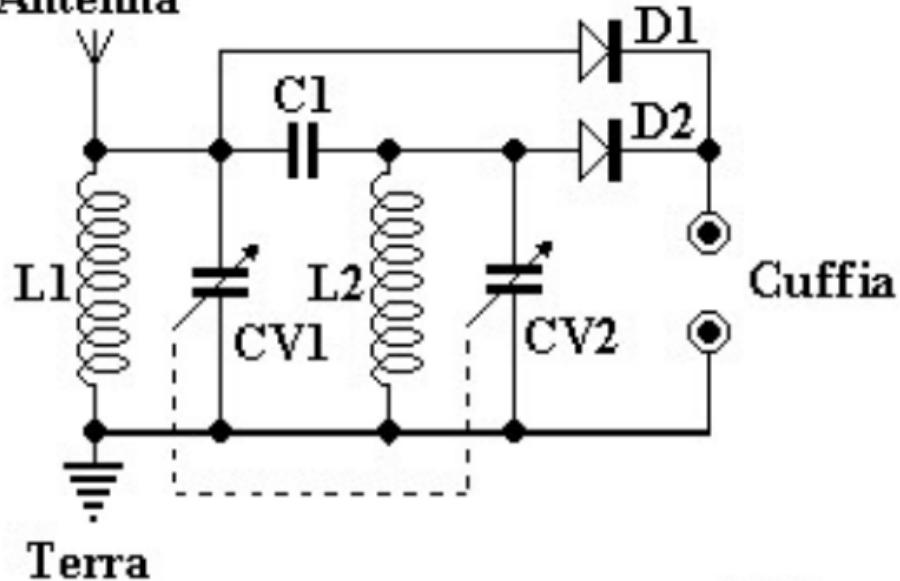
la piattina è lunga 0,96 lambda ovvero 144 cm per 100 MHz



Un progetto di Luciano Loria



Antenna



Materiale occorrente

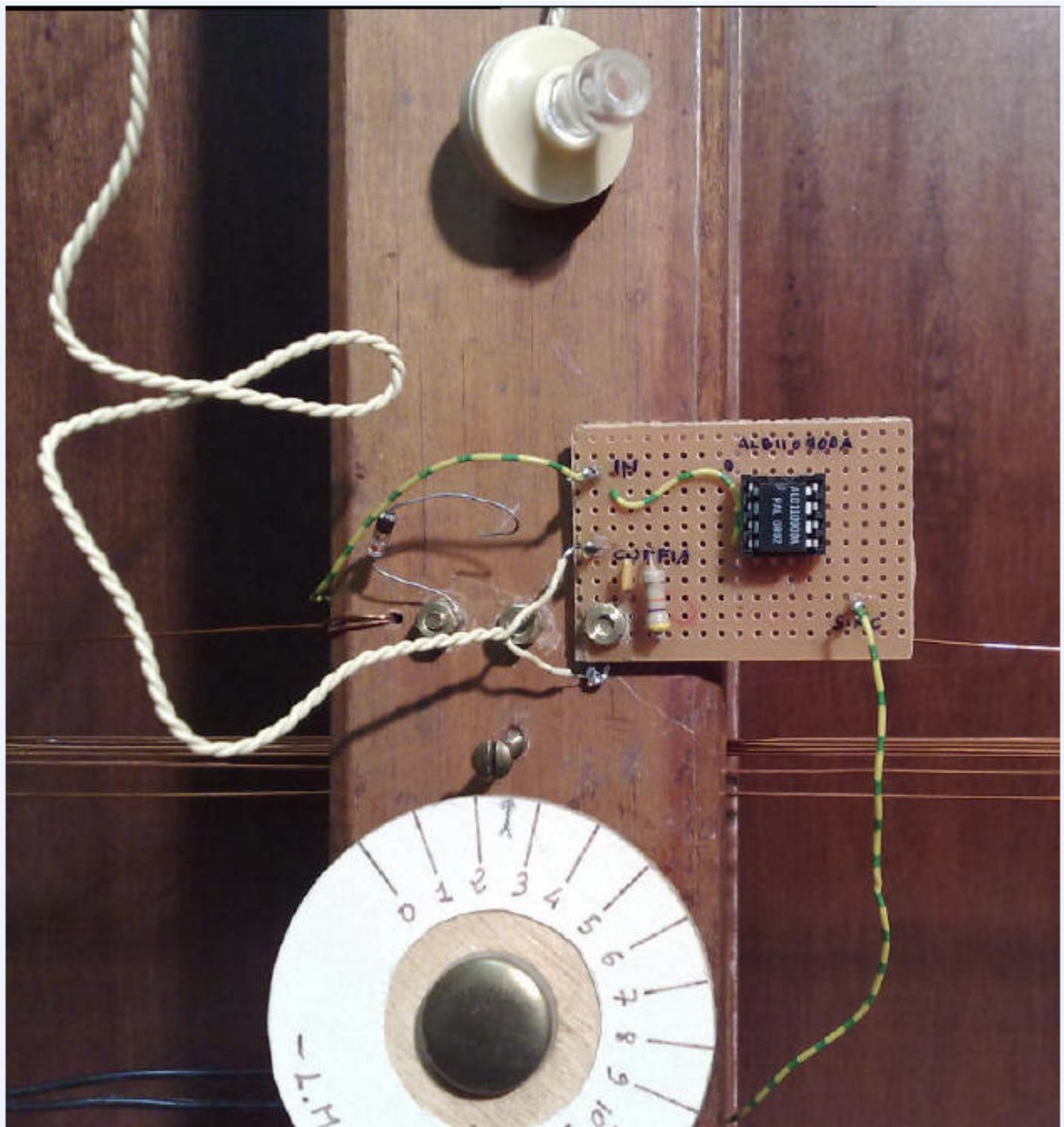
L1; L2 = 90 spire filo rame smaltato \varnothing 0,3 mm
su tubo isolante \varnothing 3 cm

CV1; CV2 = variabile in aria 350 + 350 pF

C1 = condensatore ceramico 220÷330 pF

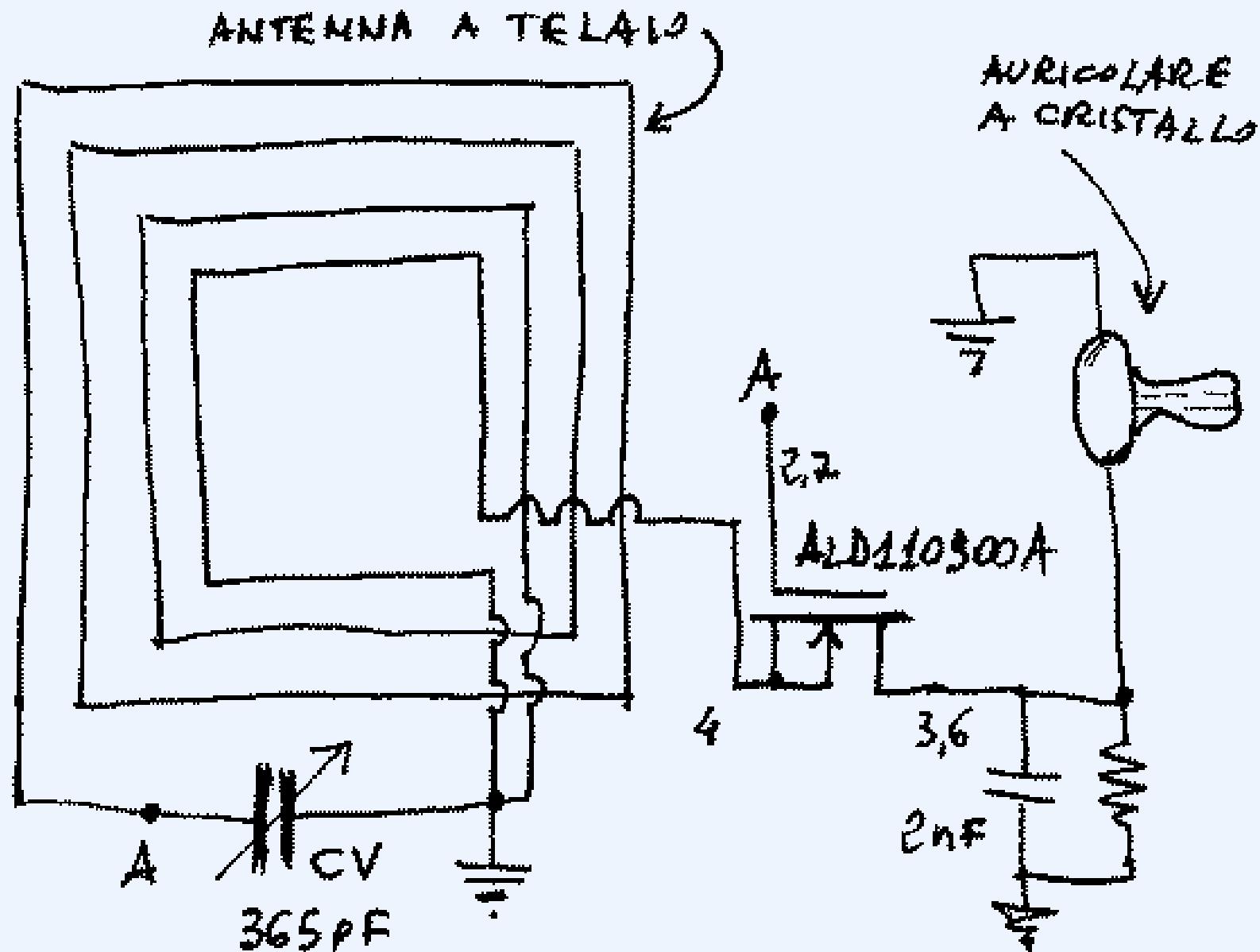
D1; D2 = diodo al germanio (AA117)

Schema elettrico



I can see I left the existing 1N34 diode mounted, so that it can be reinserted to make comparison

For the tests I used my [receiver with a panel antenna](#), experimented with great satisfaction a few years ago. To adapt the reception circuit I had to make some small changes, obtaining a scheme like the one below:

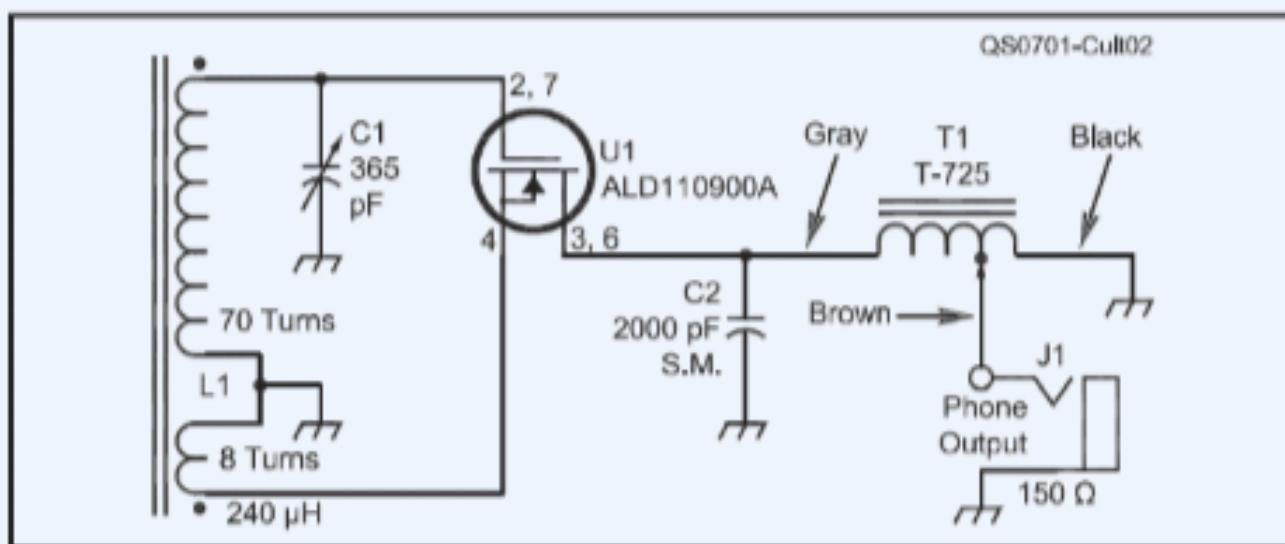




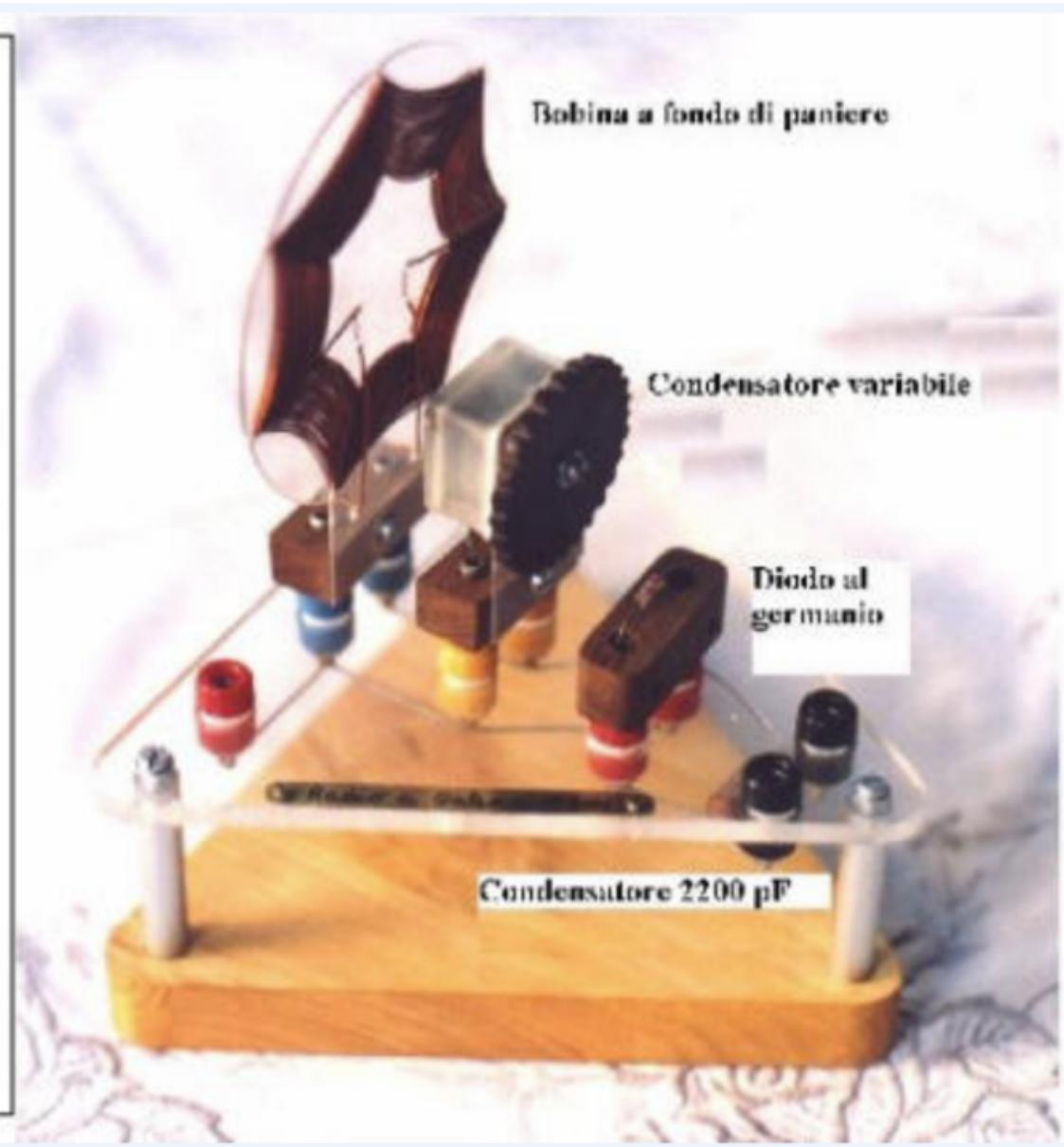
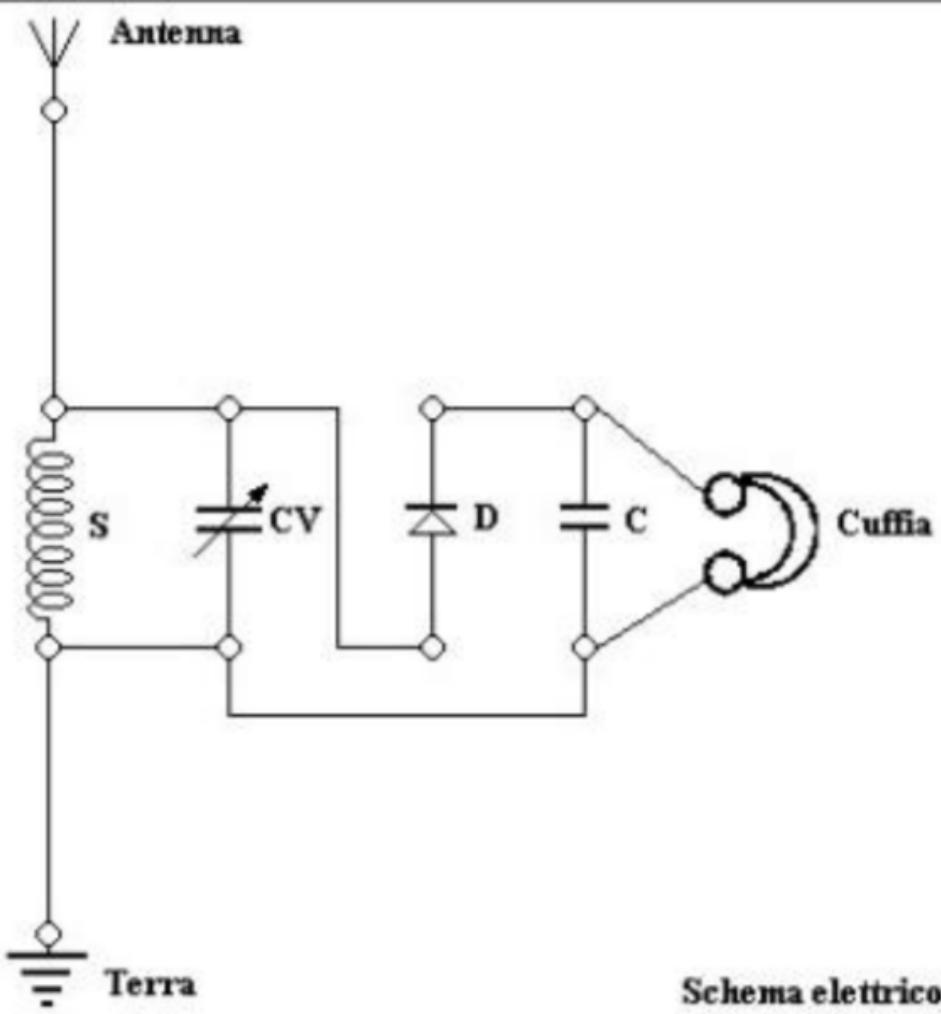
We increase sensitivity through the use of a modern zero-threshold mosfet, always without power supply

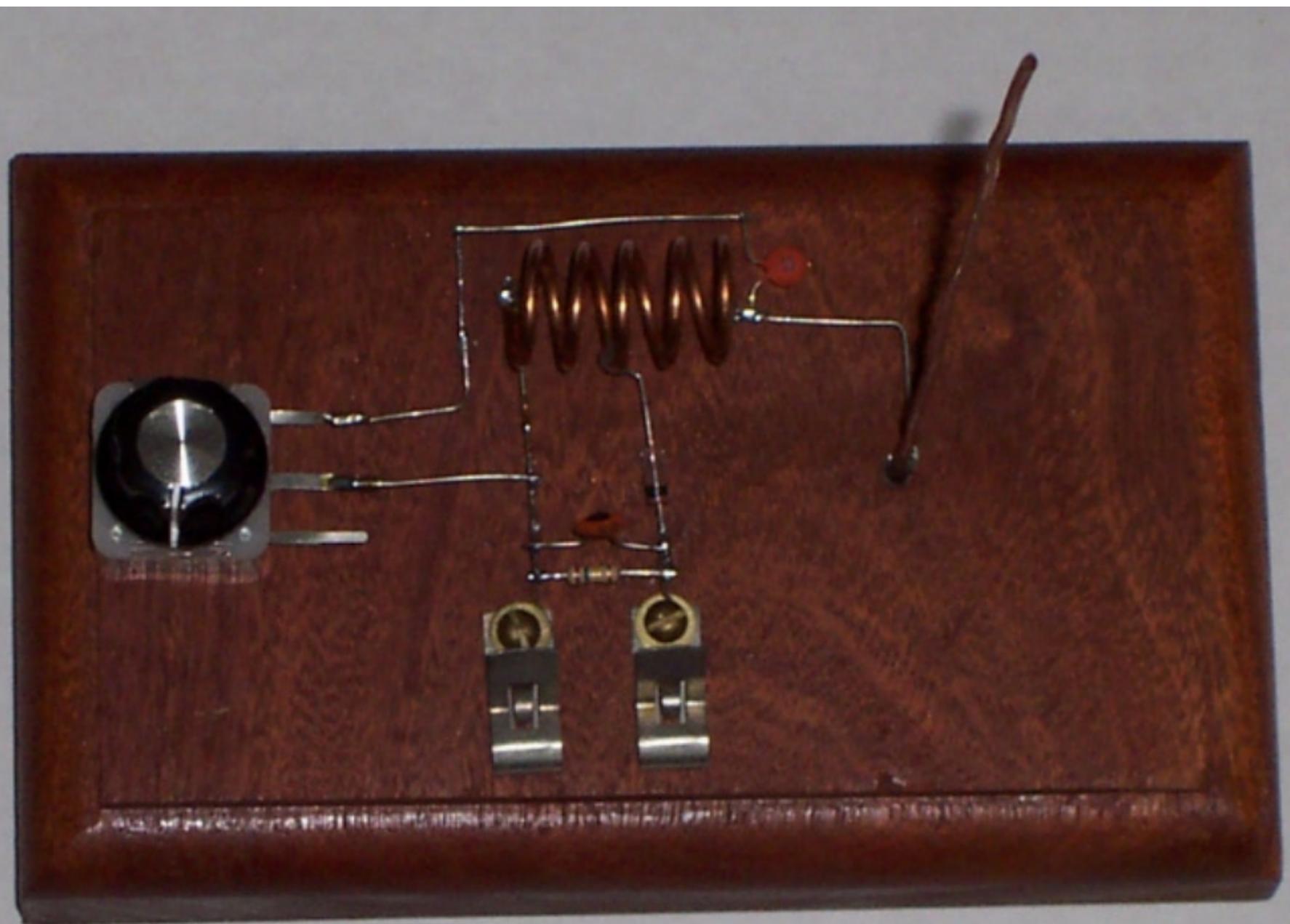
Principle of operation

From time to time, some new devices appear on the market for electronic components, suitable for experimentation in a "crystal" reception circuit. It happened a few years ago with low-fall "schottky" diodes (BAT46 etc.), which were proposed as good substitutes for old germanium diodes. Recently I have read this [article](#) by Peter Hobbs, in which a recently released device is presented, the [ALD110900A](#), mounted in a "high sensitivity" crystal receiver. This is a double mosfet with a conduction threshold equal to zero, ideal for detecting without loss a very weak signal like the one that is formed in a crystal receiver. The author proposes the realization of a scheme similar to the following one, which turns out to be of the synchronous detection type.



According to the author, the sensitivity is so high as to allow the realization of a receiver without an external antenna, based on the use of only the ferrite antenna, like that of transistor receivers. Its scheme uses as a transducer a telephone capsule coupled to the receiver by an adaptation transformer (this solution deserves to be better investigated).







First off, check to see if the parts match the parts list...

1 – 1/2" x 3" CPVC tube
2 – 5/8" O.D. vinyl caps
1 – 3/32" dia x 2.5" brass rod
1 – 4-40 x 7/16" pan head screw
1 – 4-40 x 1/4" pan head screw
2 - #4 internal tooth lock washer
1 – 4-40 nut, steel
1 – 4-40 nut, brass
1 – 3/32 x 2" tyrap
2 - #4, 14-16ga ring terminal
1 – PCB
1 – D1 - 1N34A diode
1 – R1 - 4.7M 1/8w resistor (YEL, VIO, GRN, GLD) **See note**
1 – C1 - .01 disk ceramic capacitor (103)
3' – RG-174 coax
2 – banana plugs, 1 red, 1 black
2" – 3/16" dia. shrink tubing
1 – alligator clip and 9" lead
1 - copper foil tape, 2.25" x 2"
1 – self adhesive label

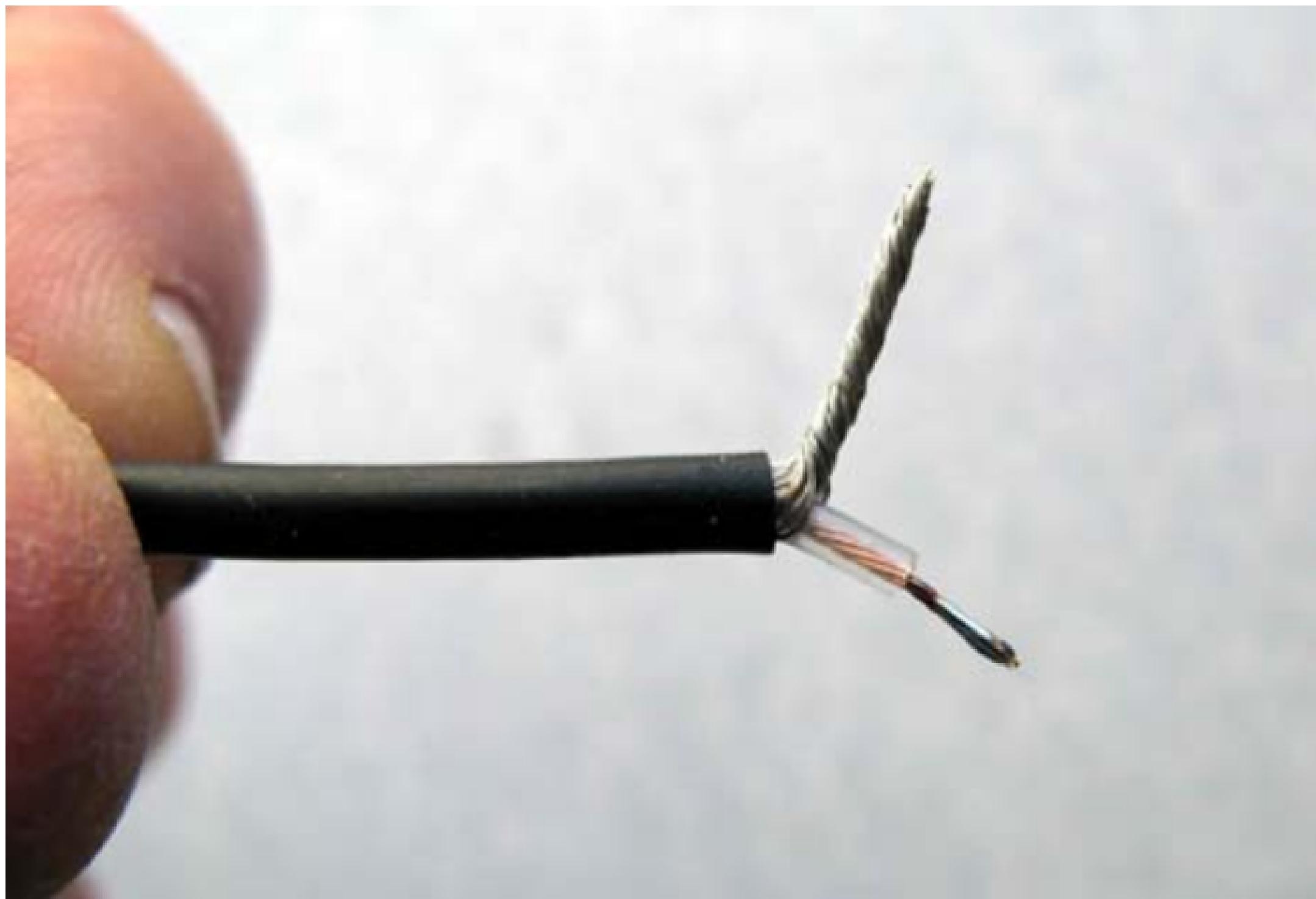
RF PROBE REV A
/09 C10

SIGNAL



R1 DVM-
HENDRICKS ORP K1
DVM-
D1





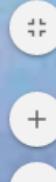
RF PROBE REV A
1/16/09

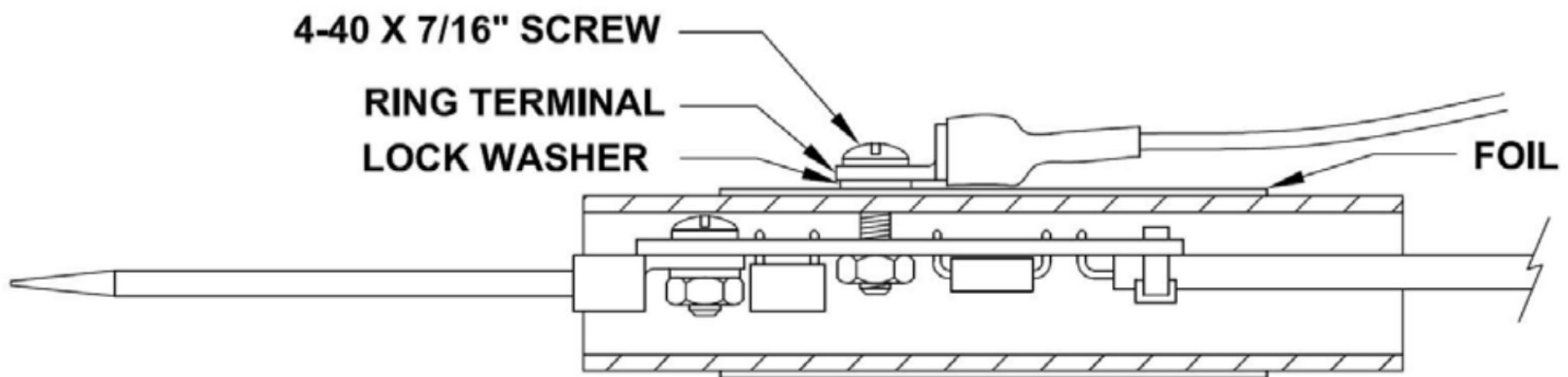
SIGNAL

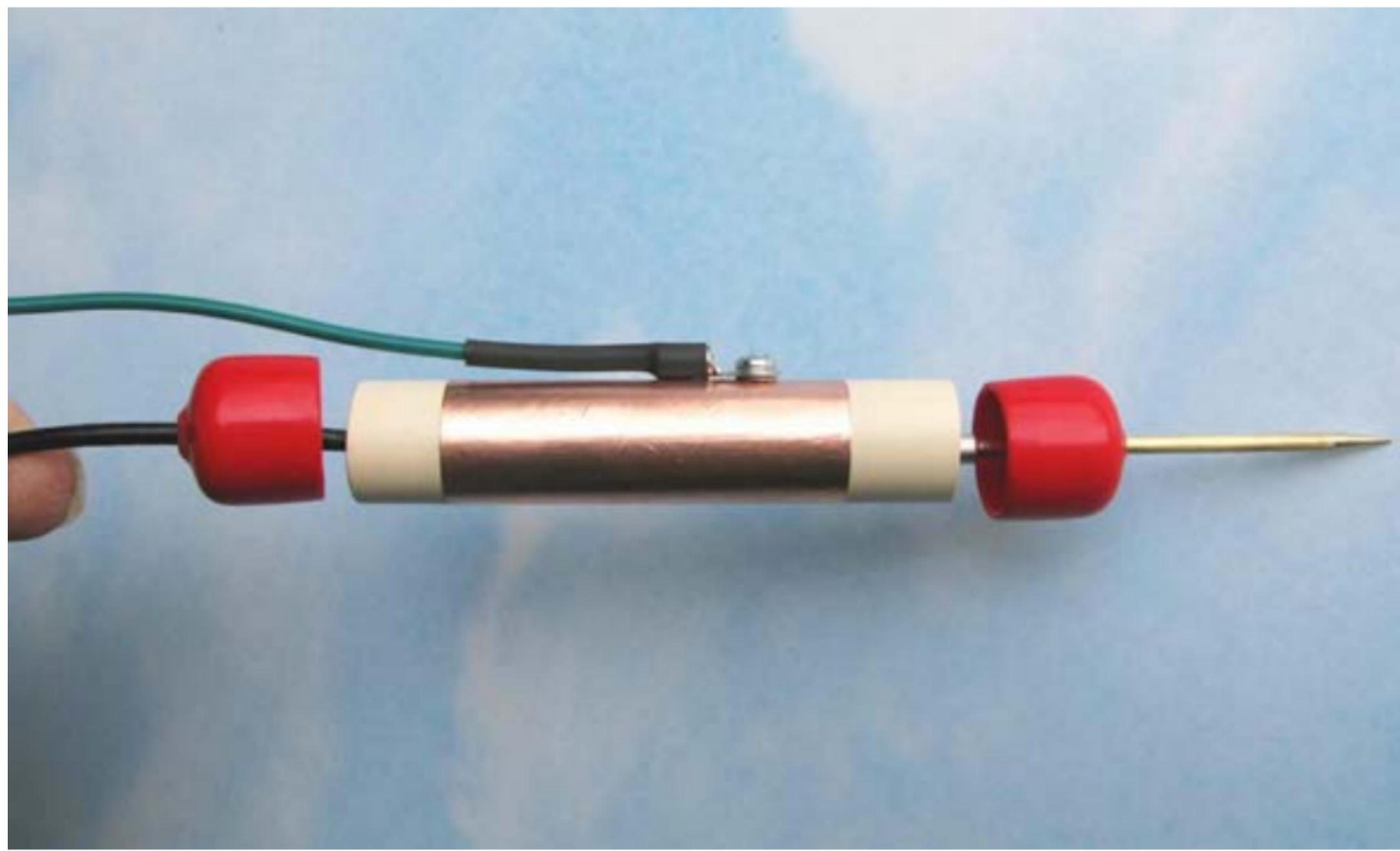


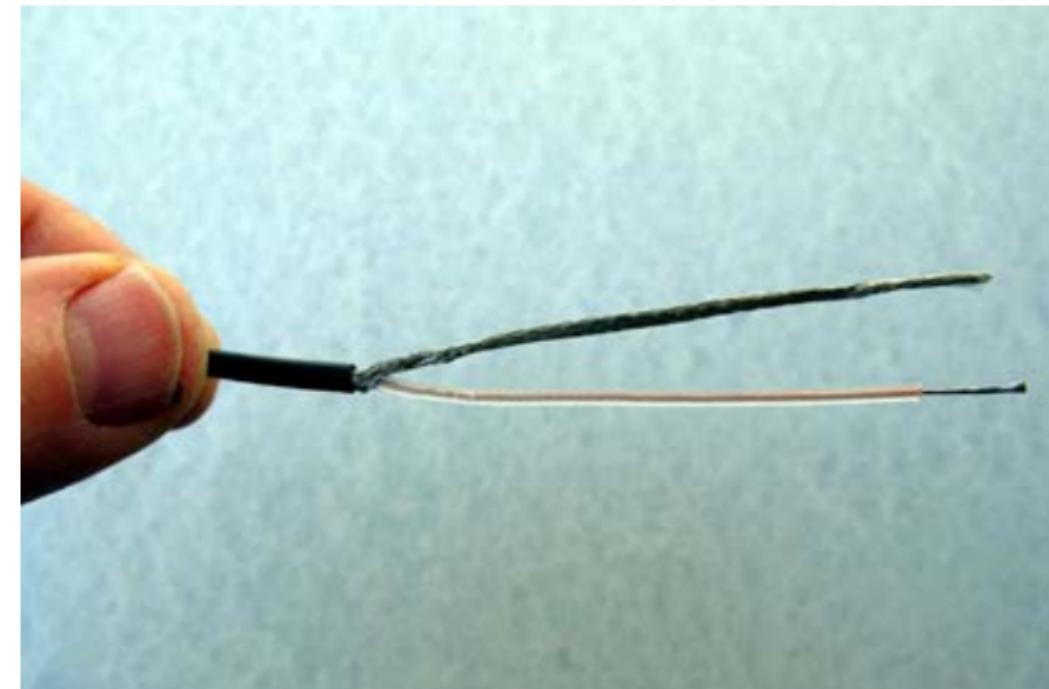
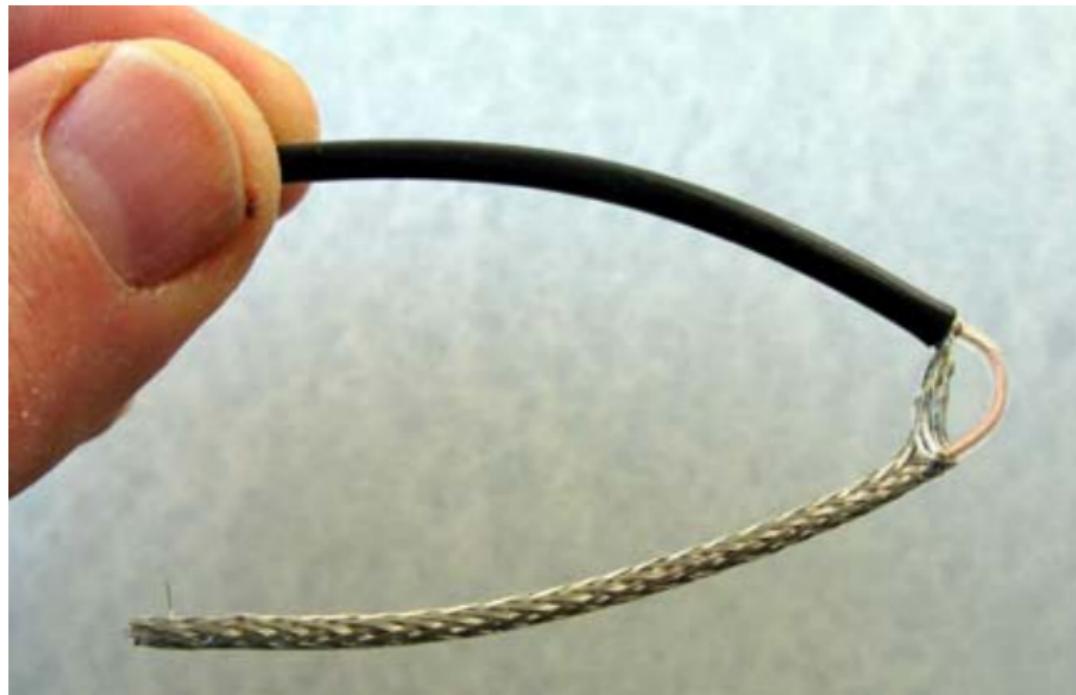
HENDRICKS

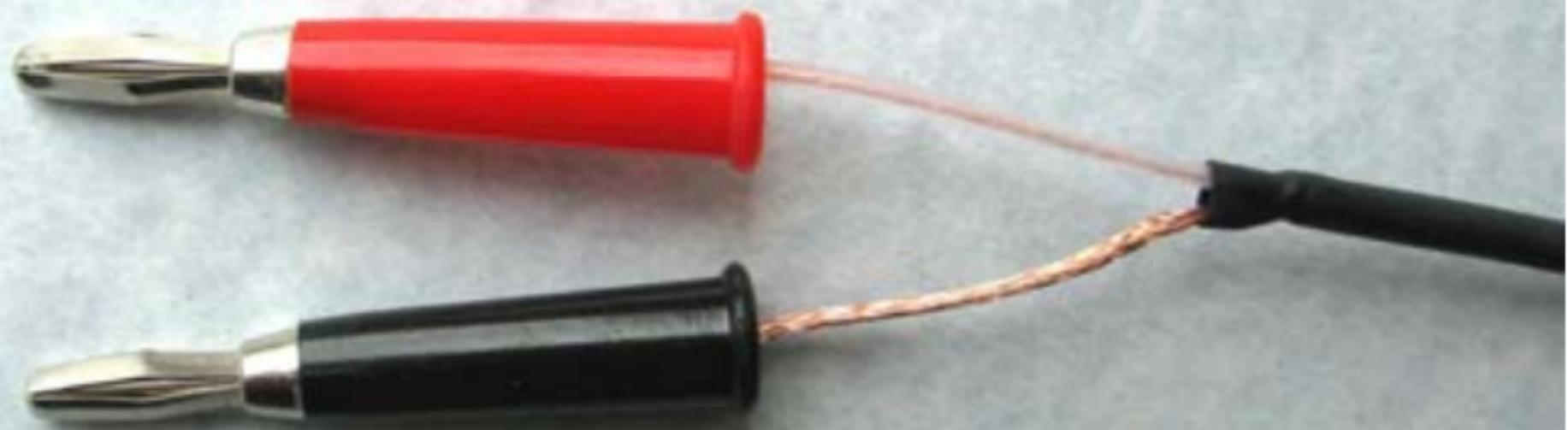
D
QRP
DVM

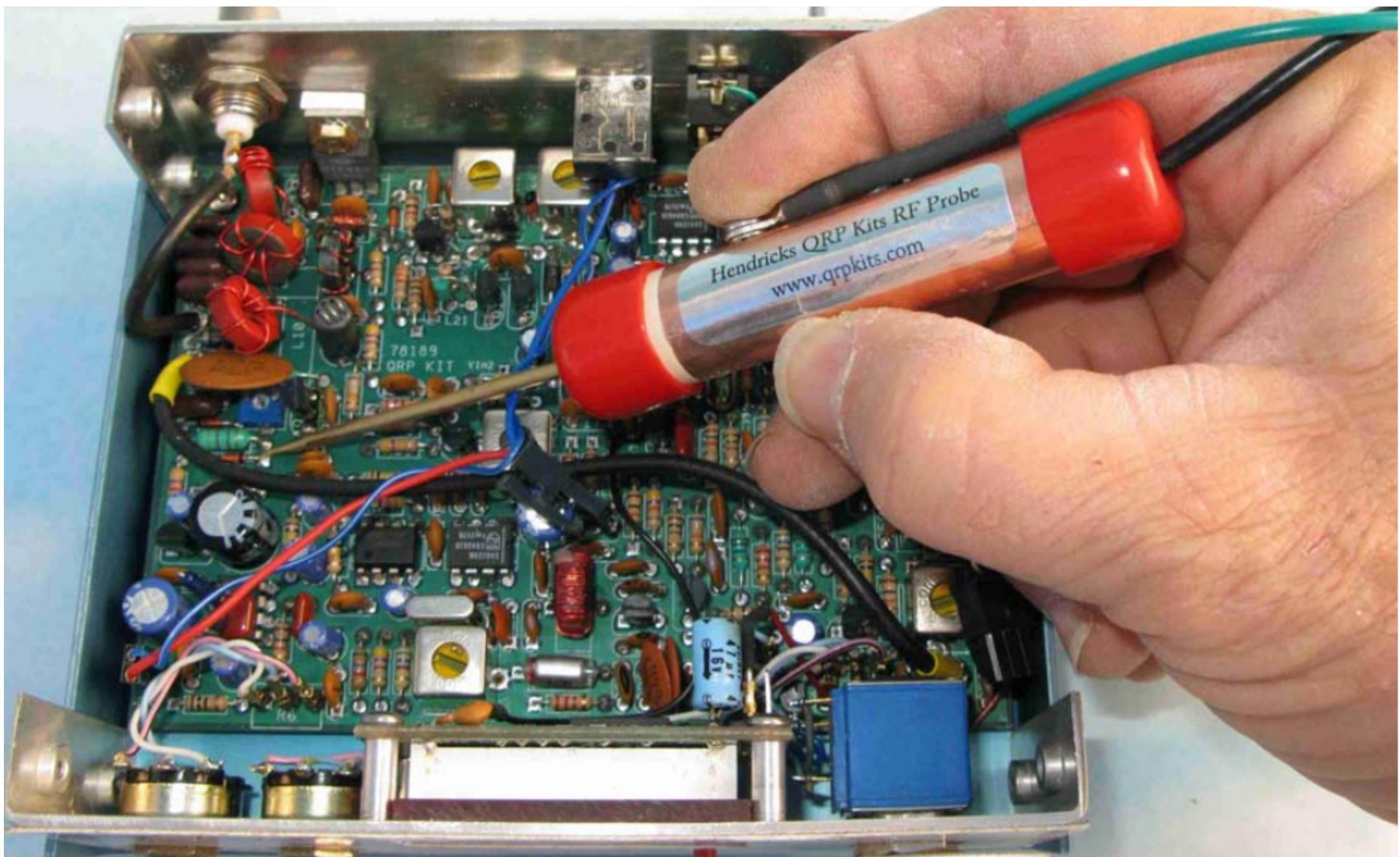




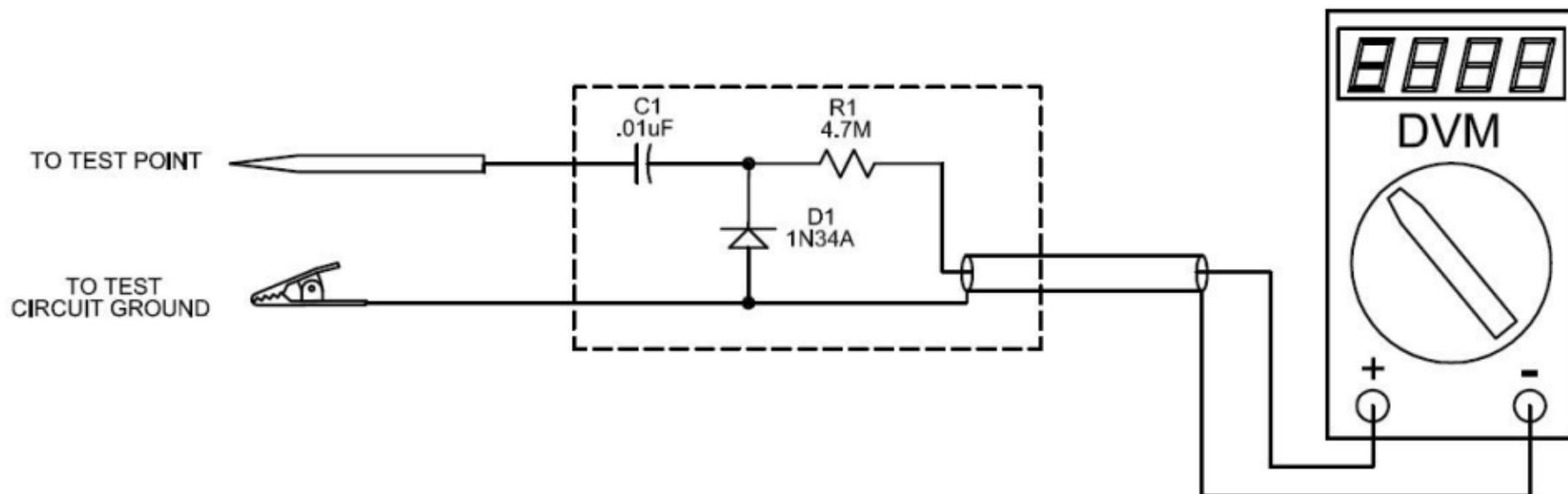






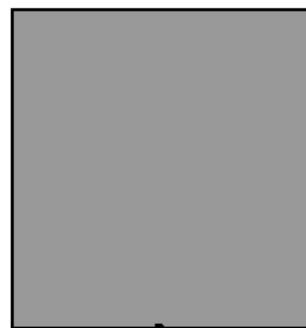
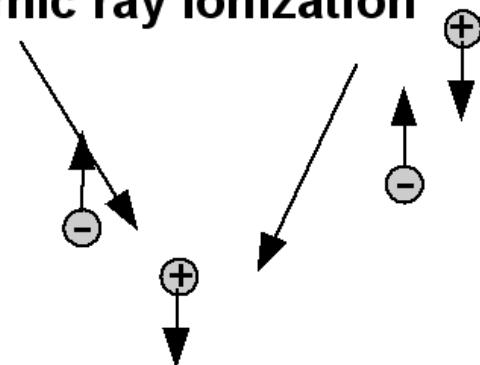


Look in the files section for **Dar's (Darwin Piatt) – W9HZC** application and usage tips for the R.F. Probe.

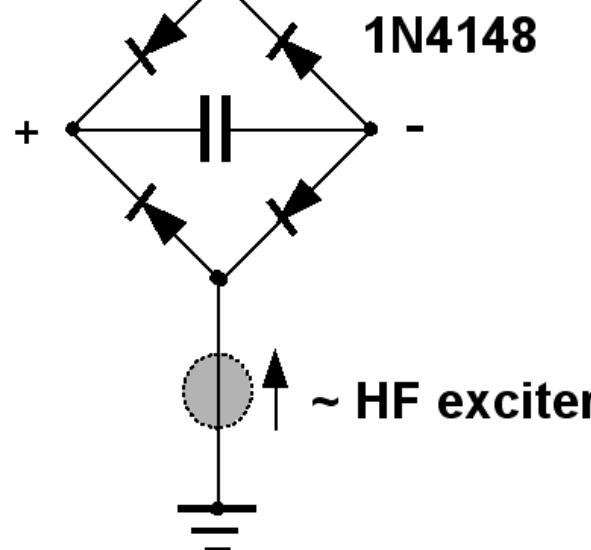


ELECTRIC ENERGY FROM SPACE:

Cosmic ray ionization

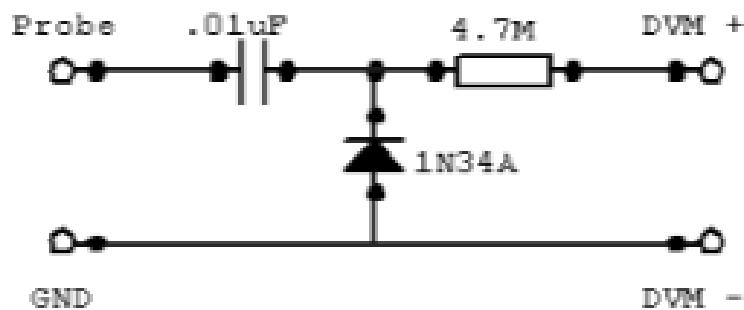


Aluminium plate (foil)



GROUND

RF tip for Multimeter and Oscilloscope



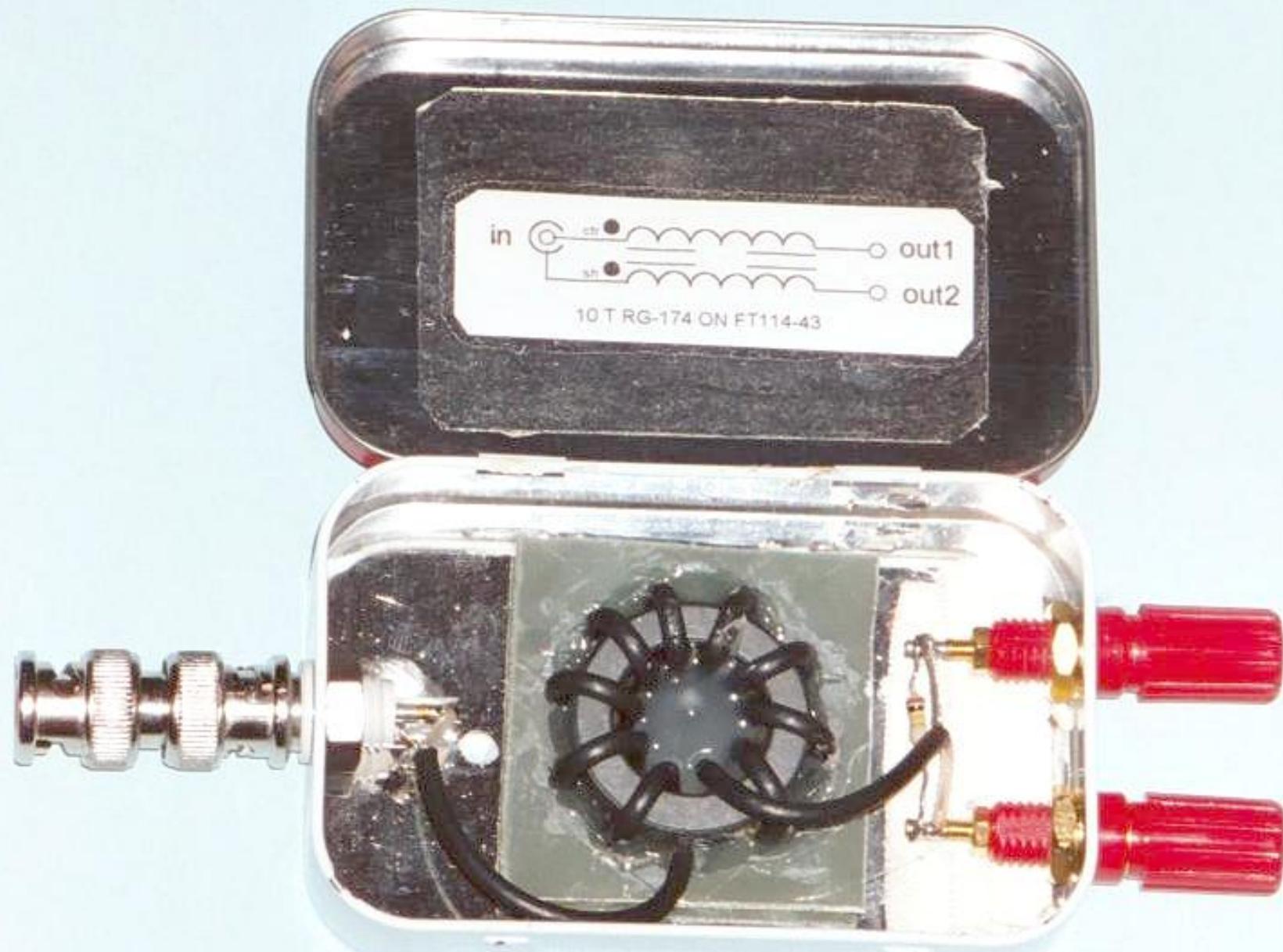
KA8MAV RF PROBE

The project **RF tip** is simple, not need special components and there is no great difficulty in its construction, making it ideal for beginners. The creator of this tip was the amateur KA8MAV, hence the name of the tip arose. Above the electronic circuit probe.

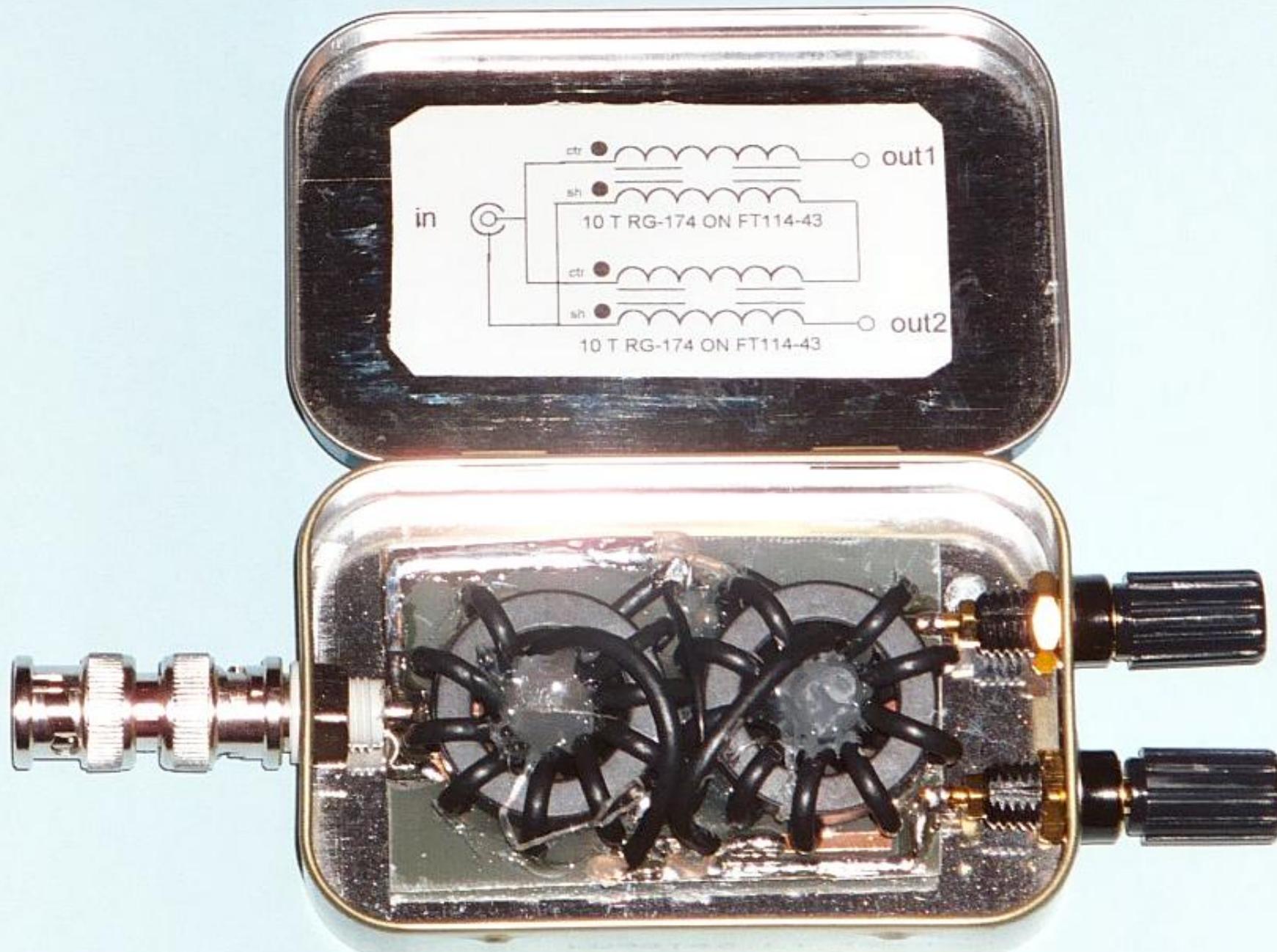
List of components for the tip RF

- 1 Germanium diode OA79, 1N34 or equivalent
- 1 Capacitor $0.01\mu\text{F}$
- 1 Resistor $4\text{M}7 \times 1/4$ Watts



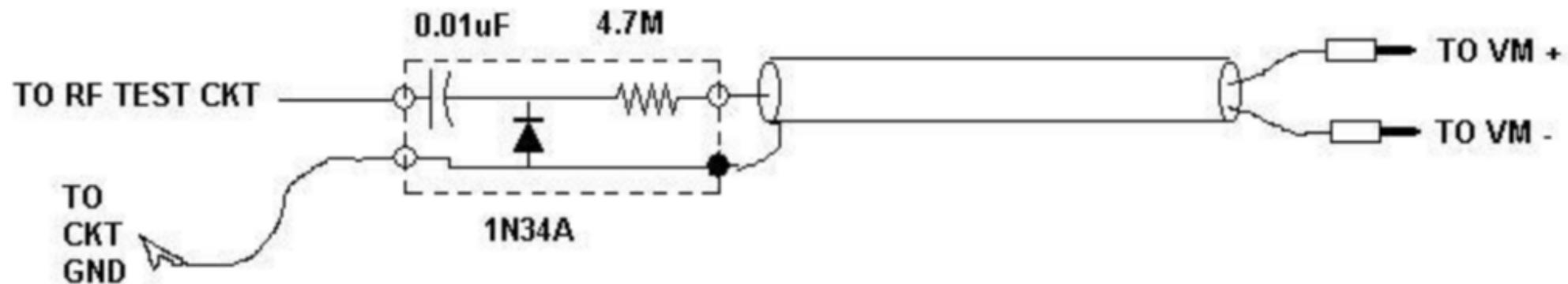


N5FC 2002



N5FC 2002

N5FC 2001



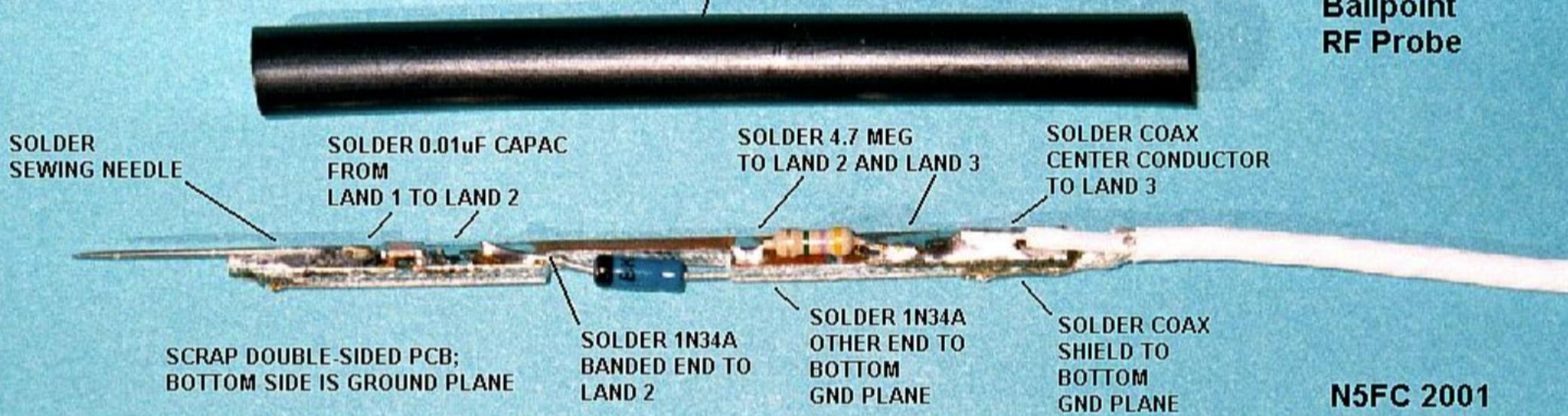
CLASSIC RF PROBE

Reads RMS Equivalent Voltage in test circuit, if Voltmeter is 10-11 Meg Input Impedance;
Reads 4X RMS Equiv Voltage if VM is 1Meg Input Impedance (Set VM to measure DCV)



**N5FC
Ballpoint
RF Probe**

AFTER CLEANING, SHRINK TUBING OVER ENTIRE ASSEMBLY



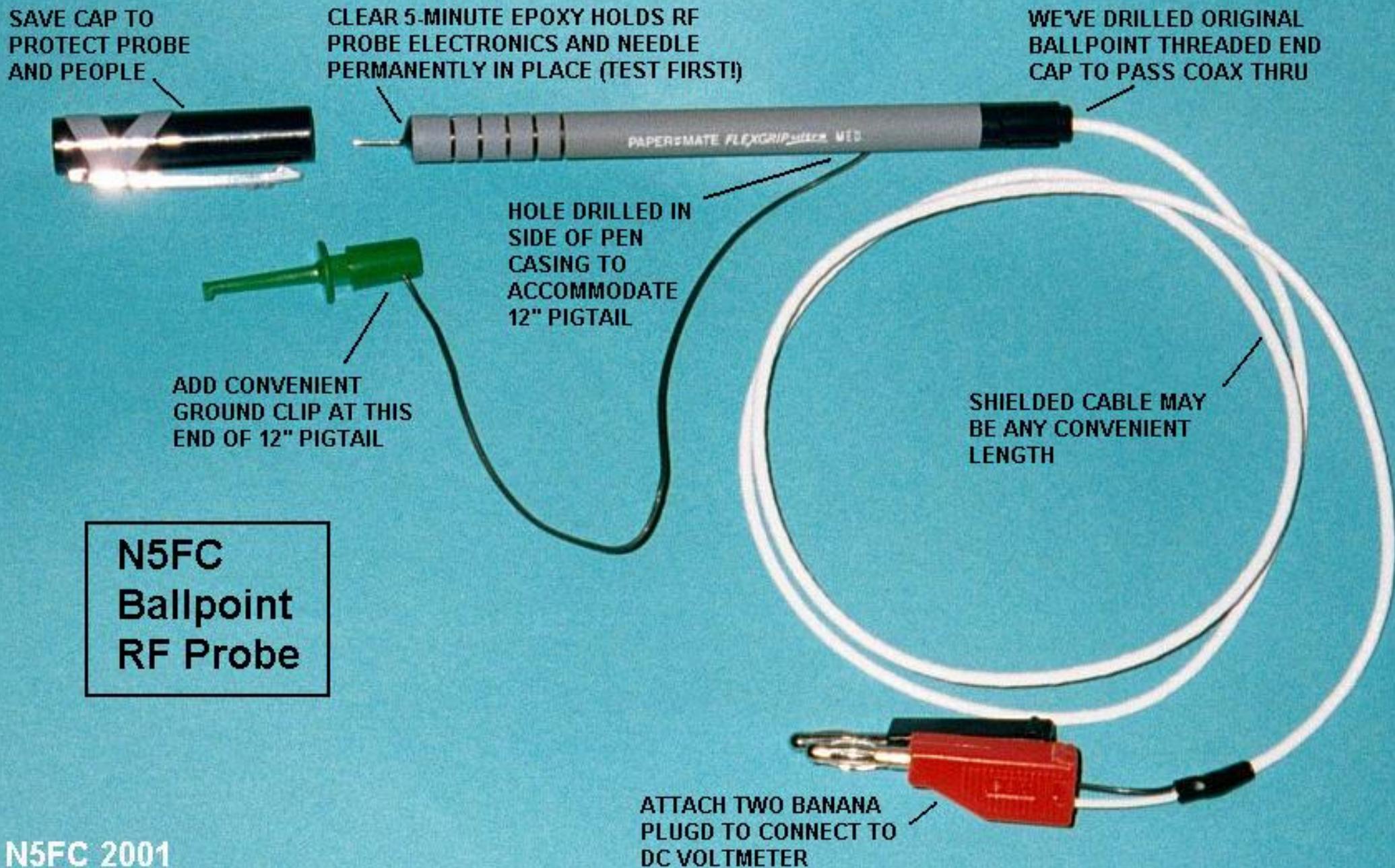


When complete, pull assembly back into ballpoint casing, leaving needle sticking out about 1/2 inch.

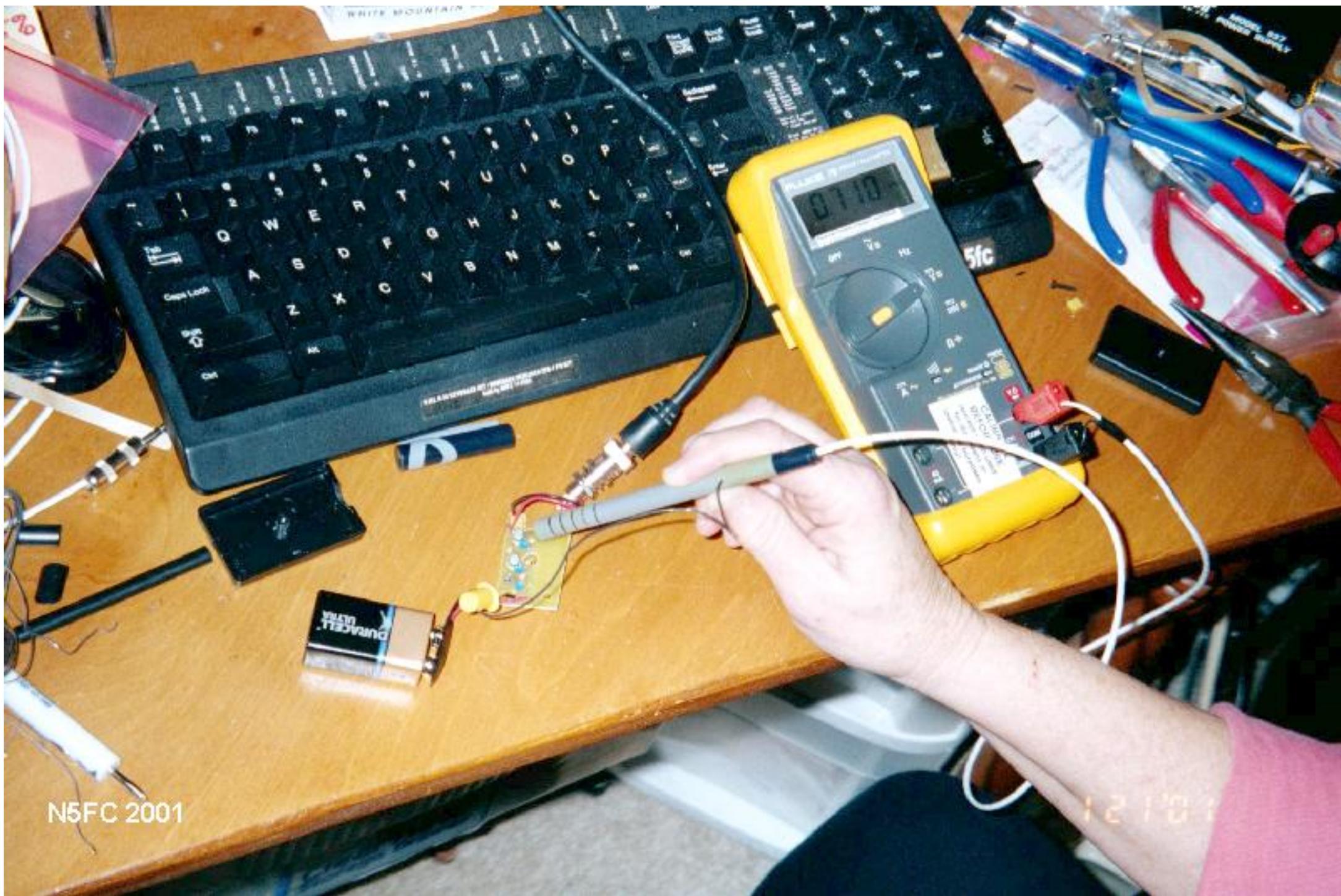
**N5FC
Ballpoint
RF Probe**

N5FC 2001

12" Wire pigtail from ground plane of RF probe PCB solders to copper taper and continues back through pen casing (alongside 3-ft shielded coax)

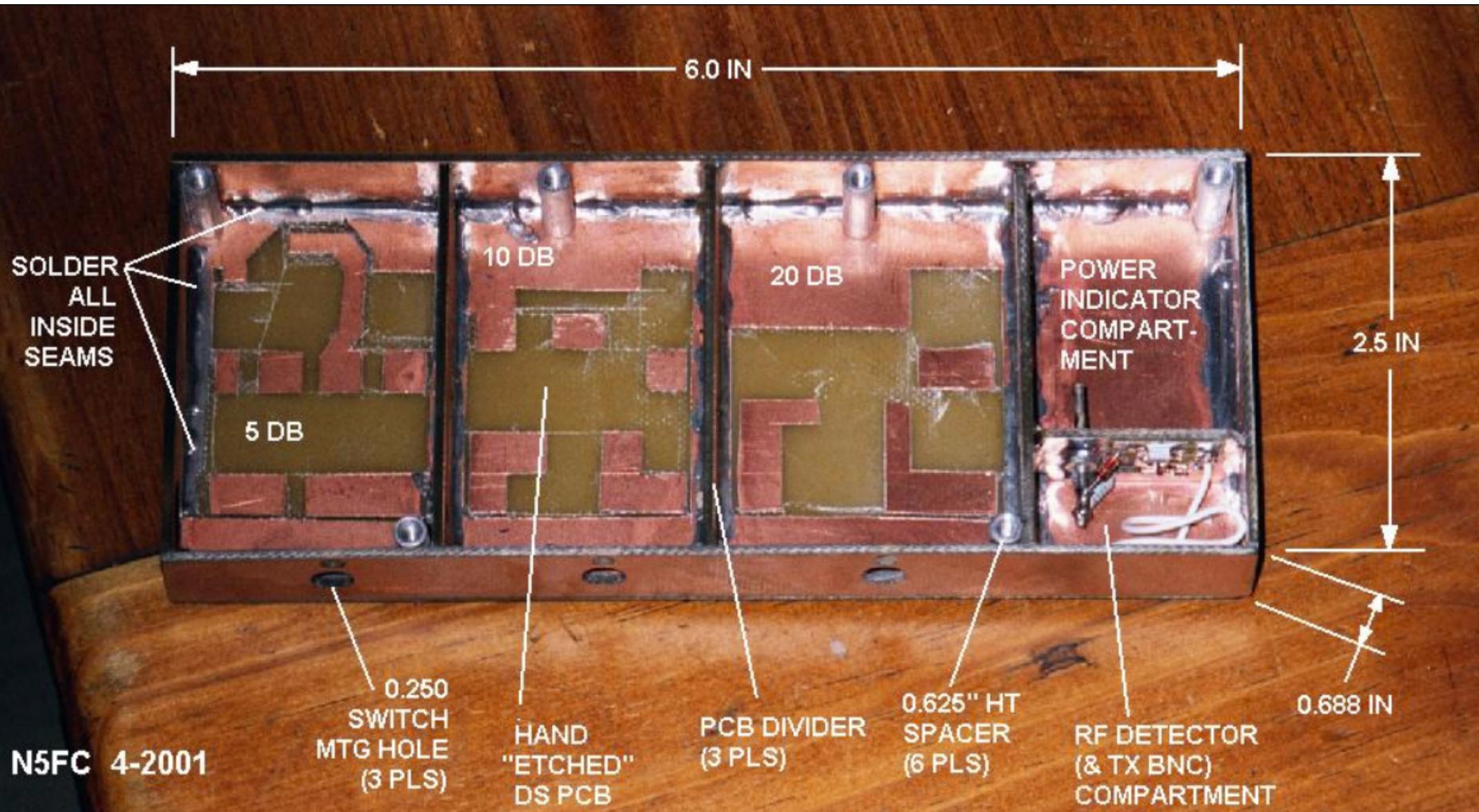


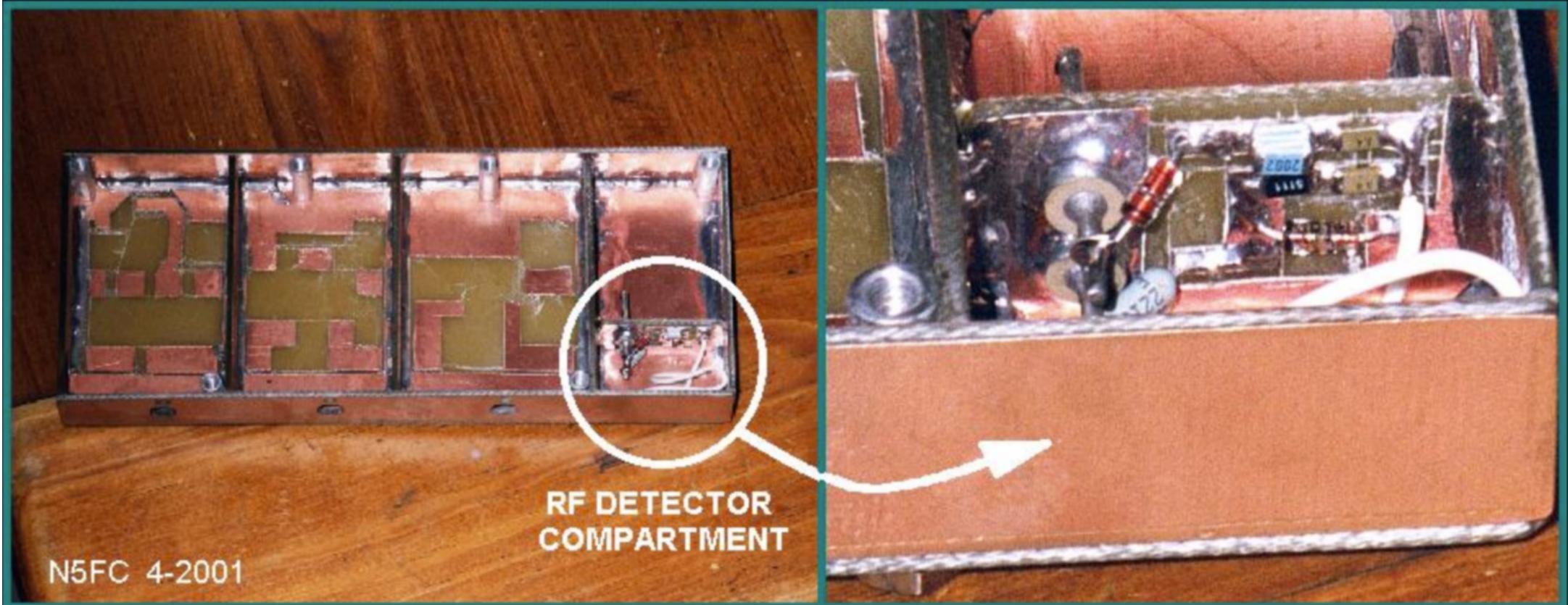
N5FC 2001

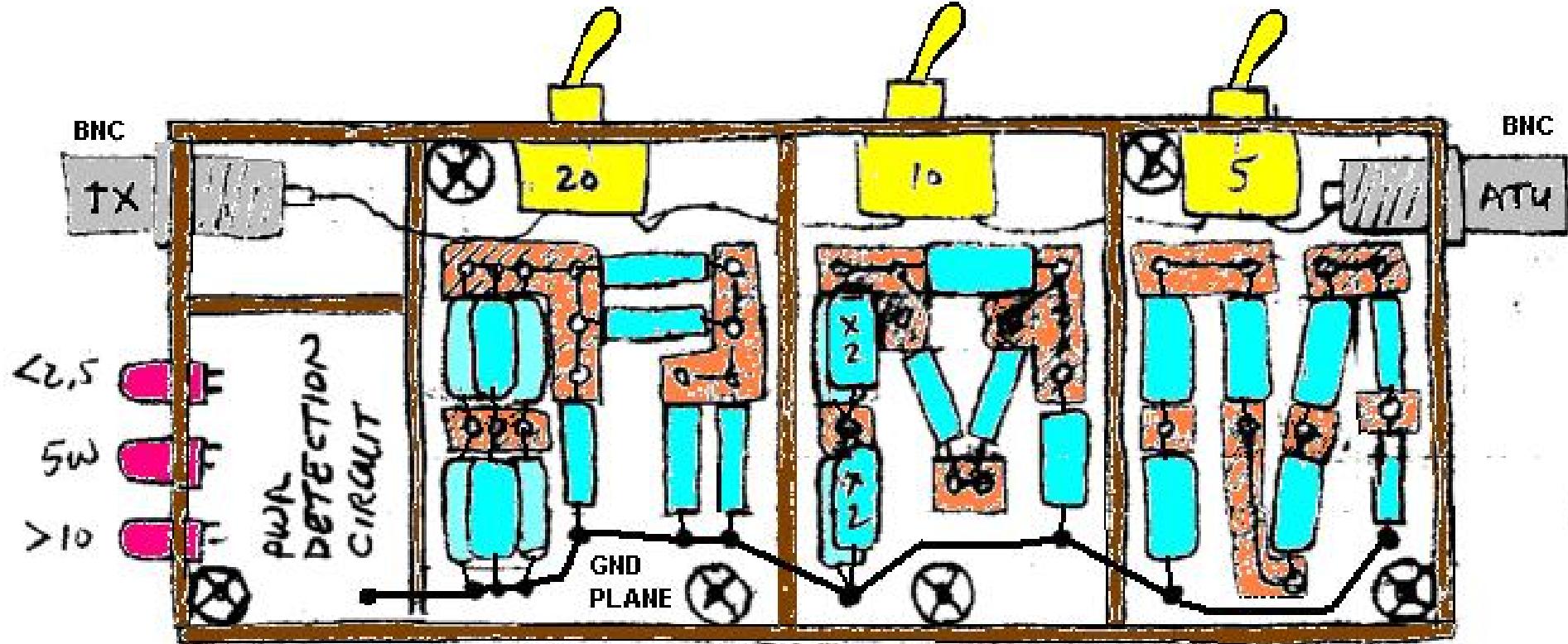


N5FC 4-2001









N5FC 4-2001

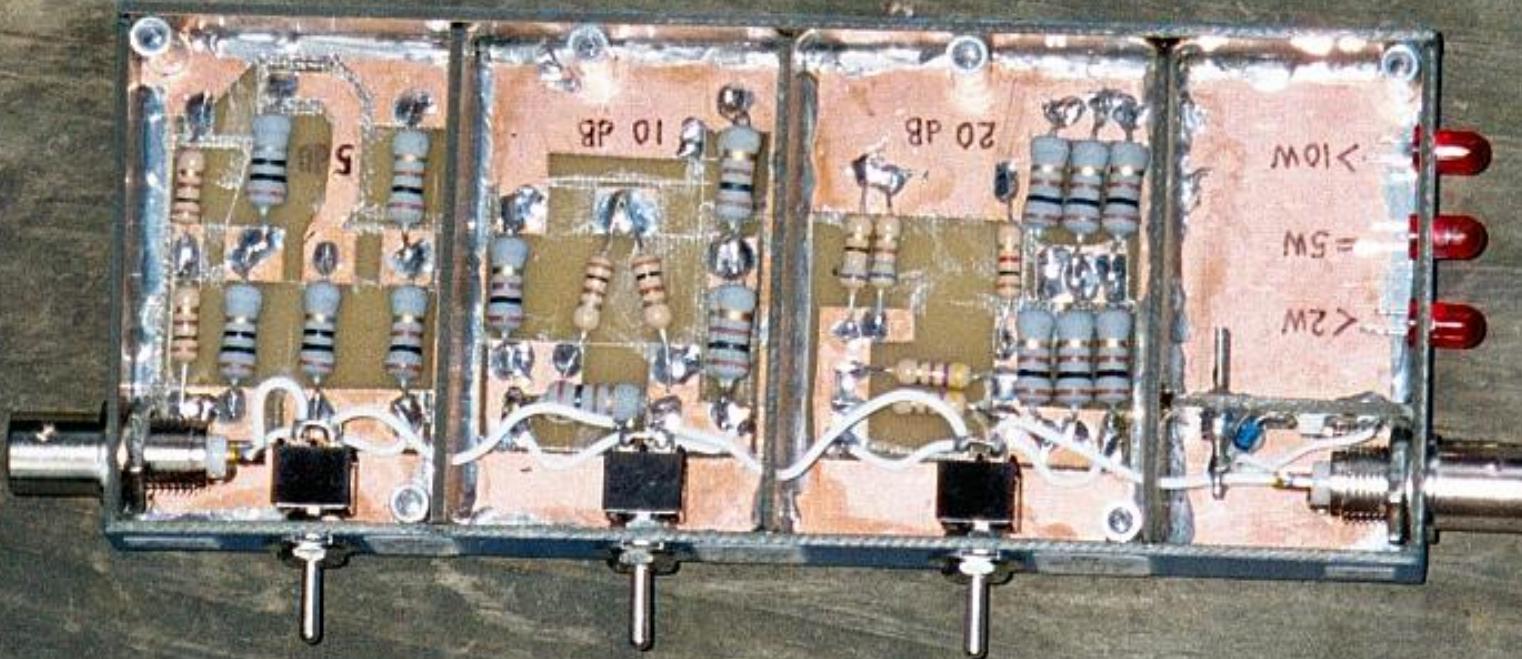


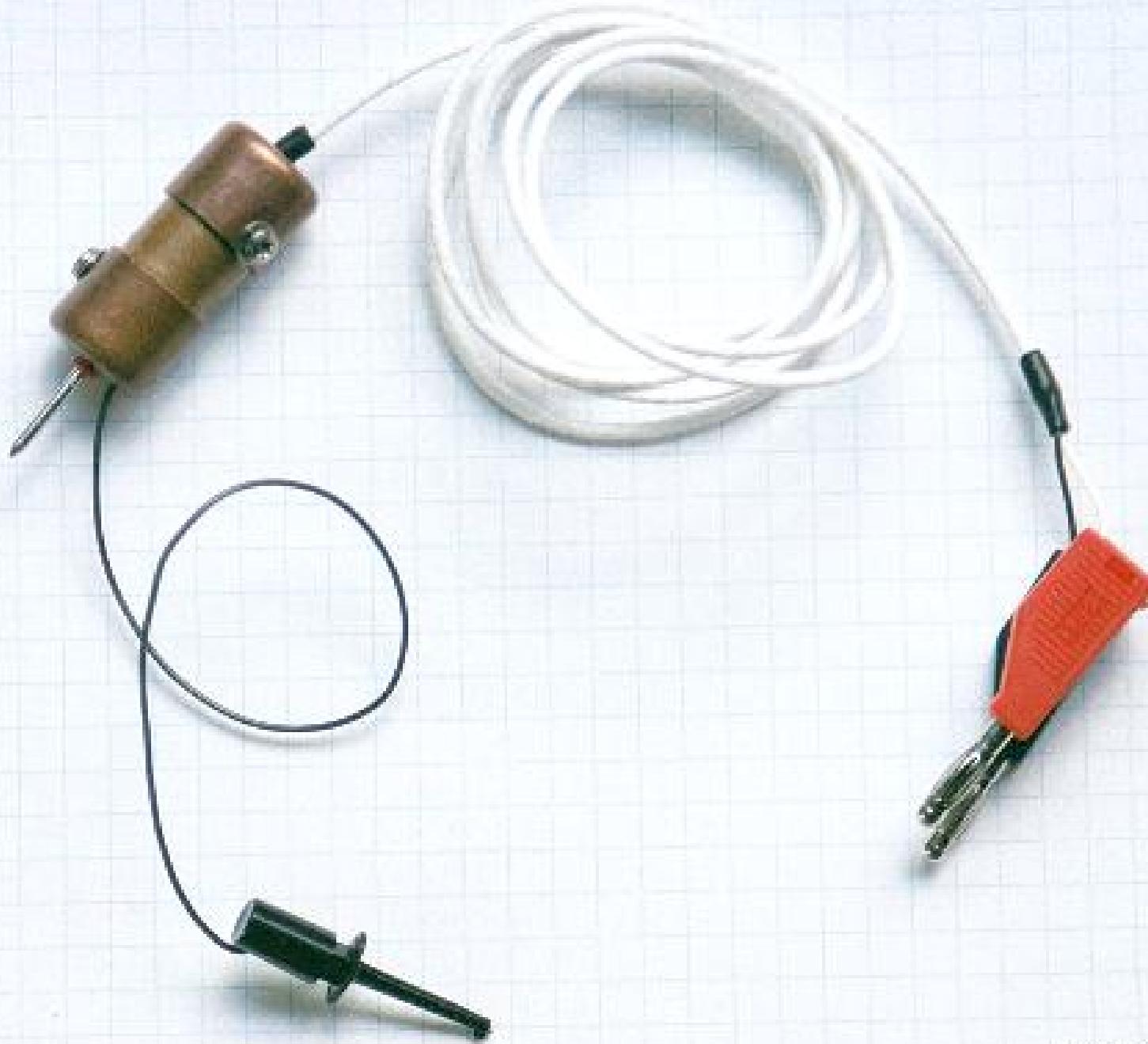
N5FC 4-2001

N5FC 4-2001

N5FC

0-5-10-15-20-25-30-35 DB
5-Watt Attenuator

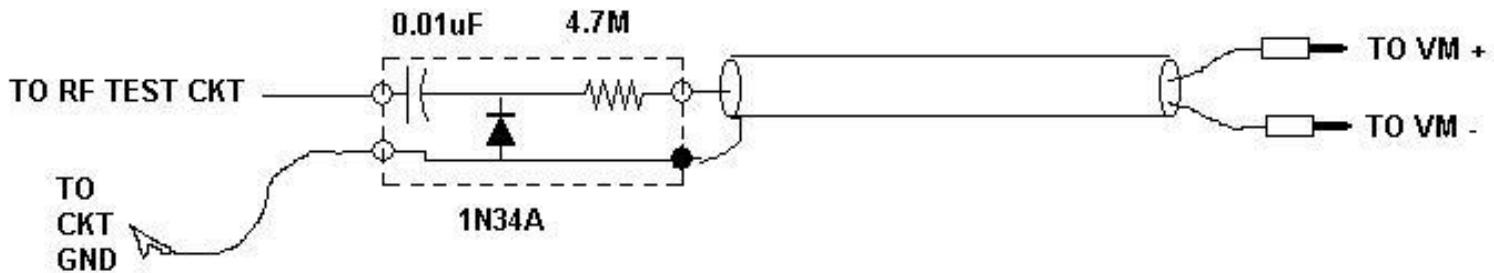




N5FC 2000

sic RF Probe. Simple, eh?

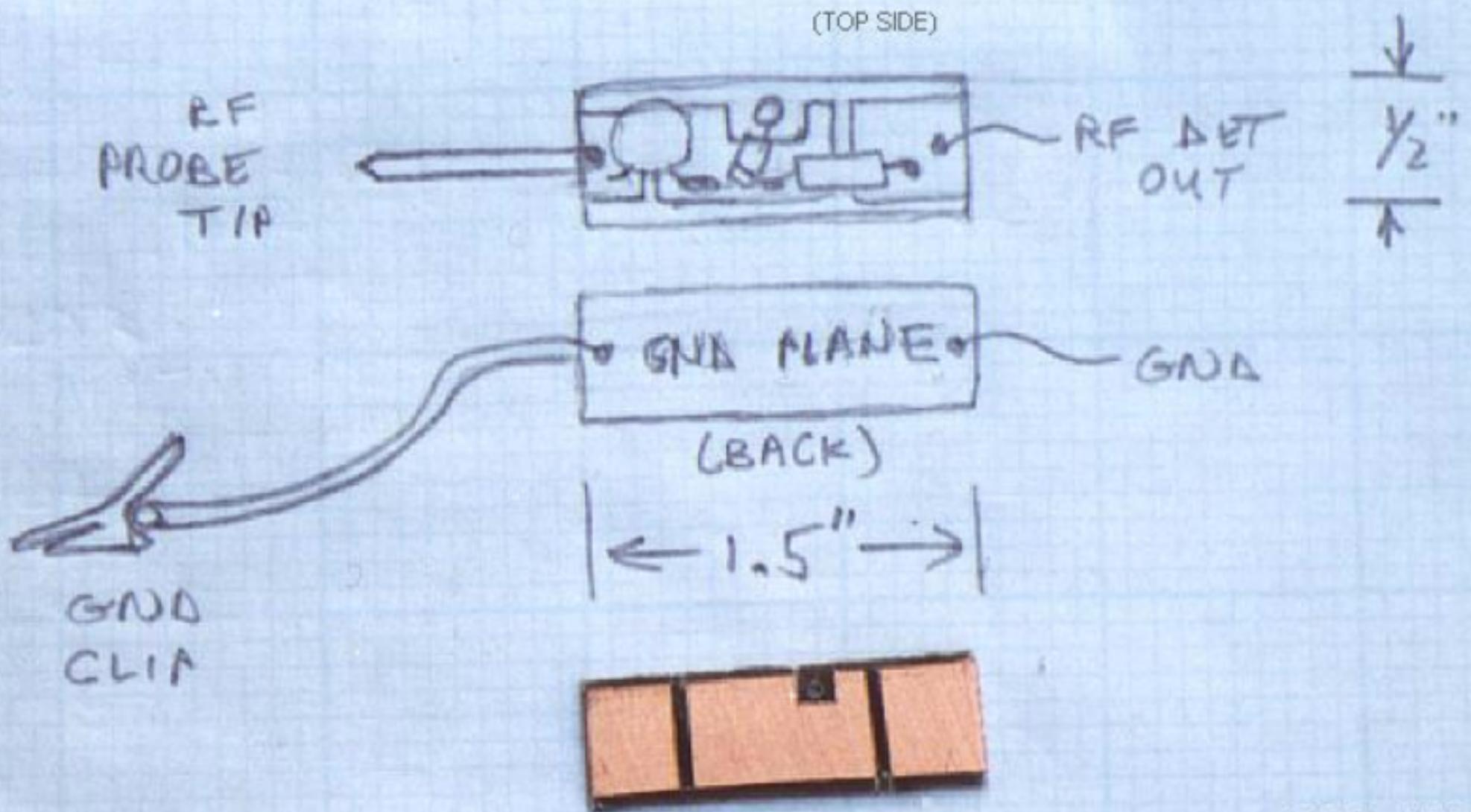
N5FC 2001



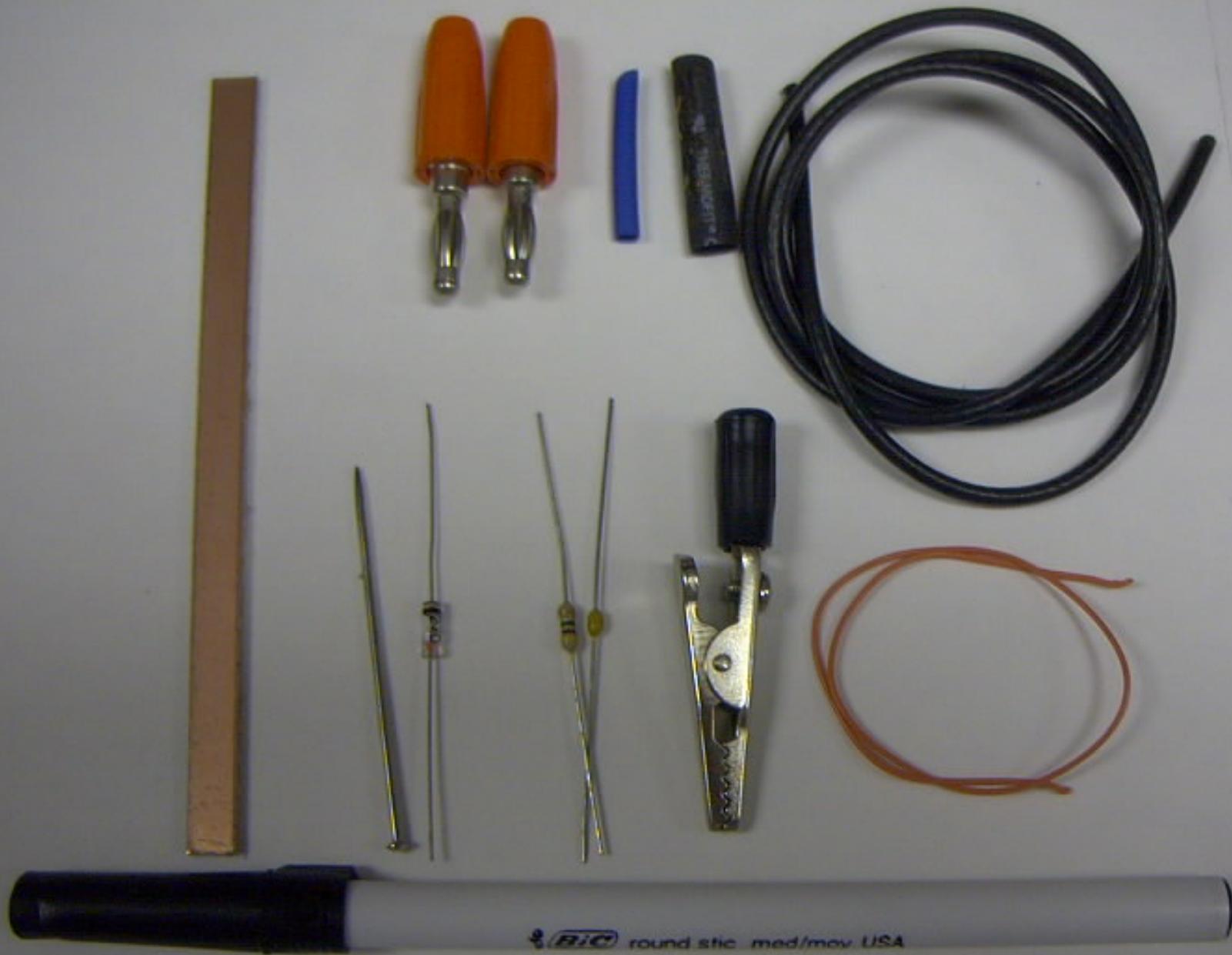
CLASSIC RF PROBE

Reads RMS Equivalent Voltage in test circuit, if Voltmeter is 10-11 Meg Input Impedance;
Reads 4X RMS Equiv Voltage if VM is 1Meg Input Impedance (Set VM to measure DCV)

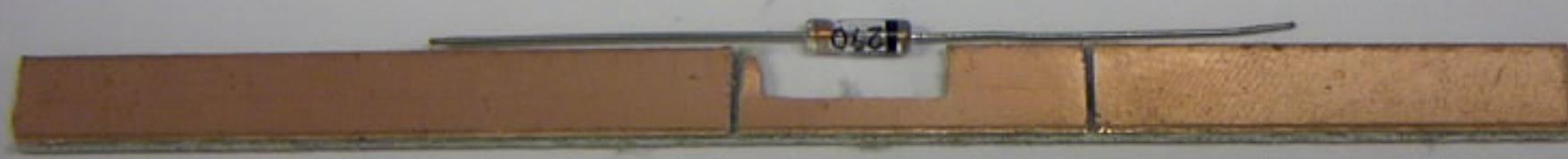
retical discussion that we'll make short note of. Obviously, for "probing" we need a "probe". (Hey! No wonder I get paid the big bucks...). We add a SH~~o~~be goes to our test circuit, where we're probing. Brilliant! We don't want either of these to be long leads, because we're talking RF here, and long leads =



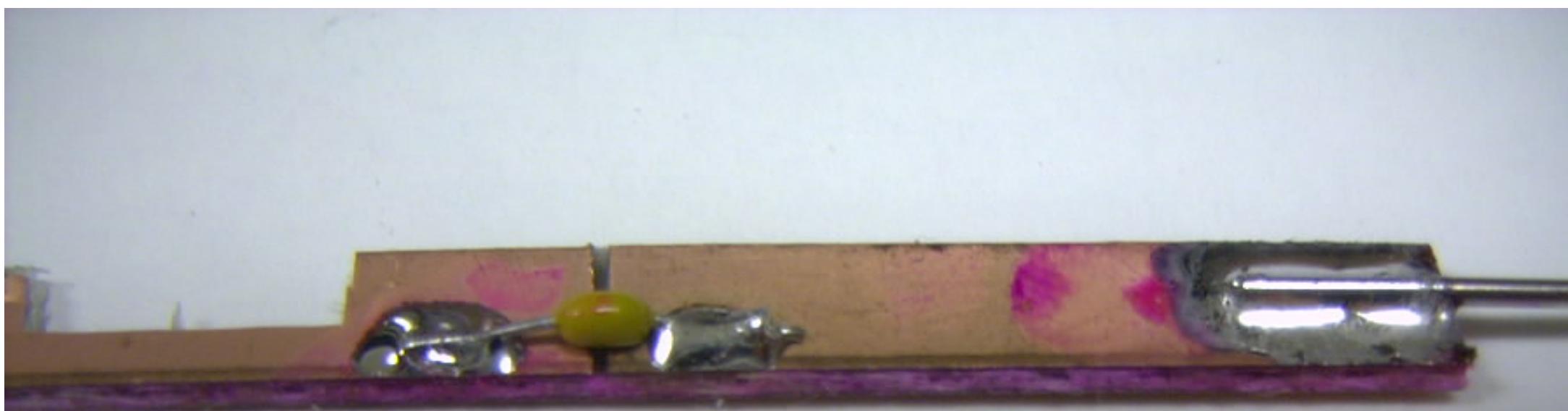
N5FC 2000



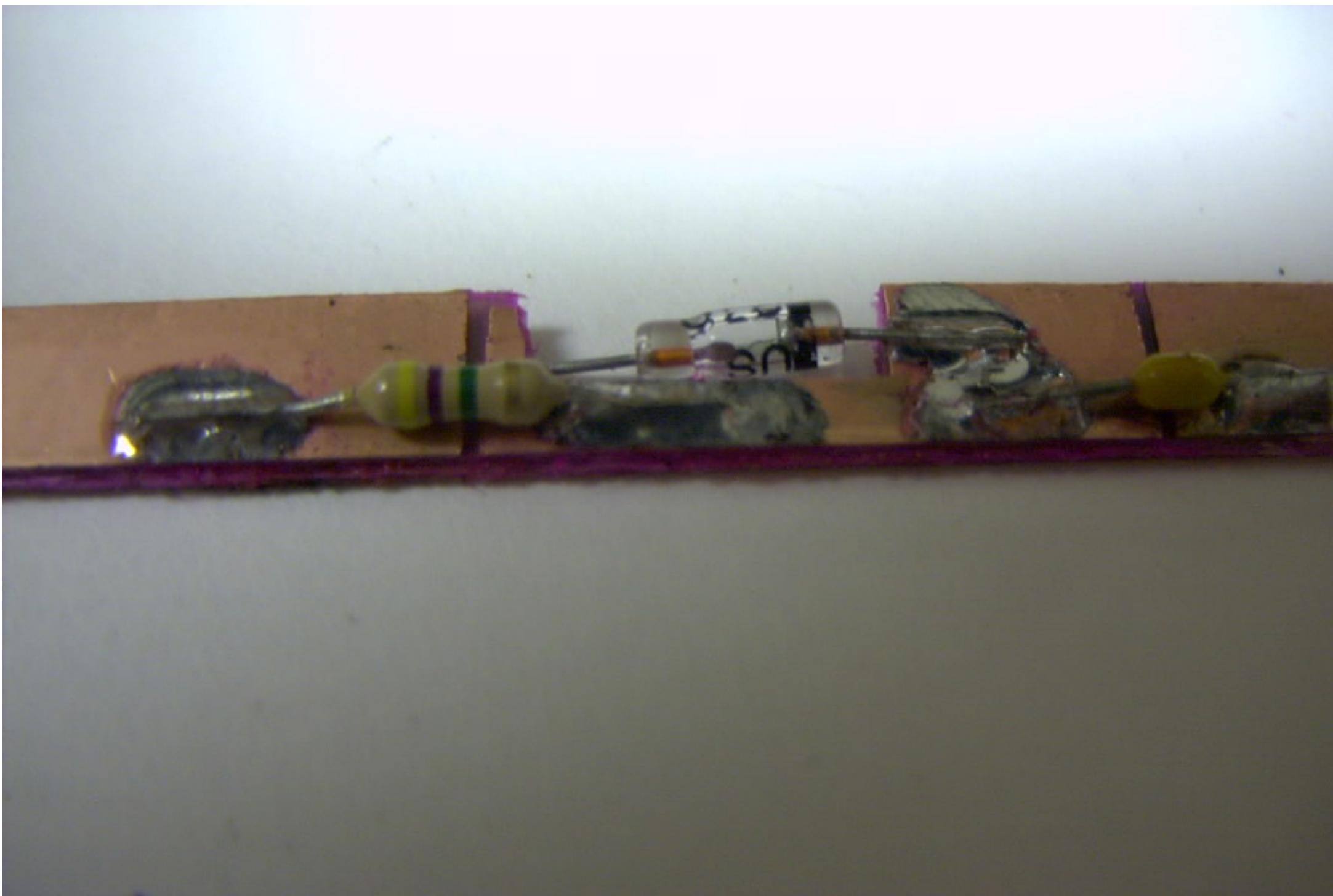
 BIC round stic med/mov USA



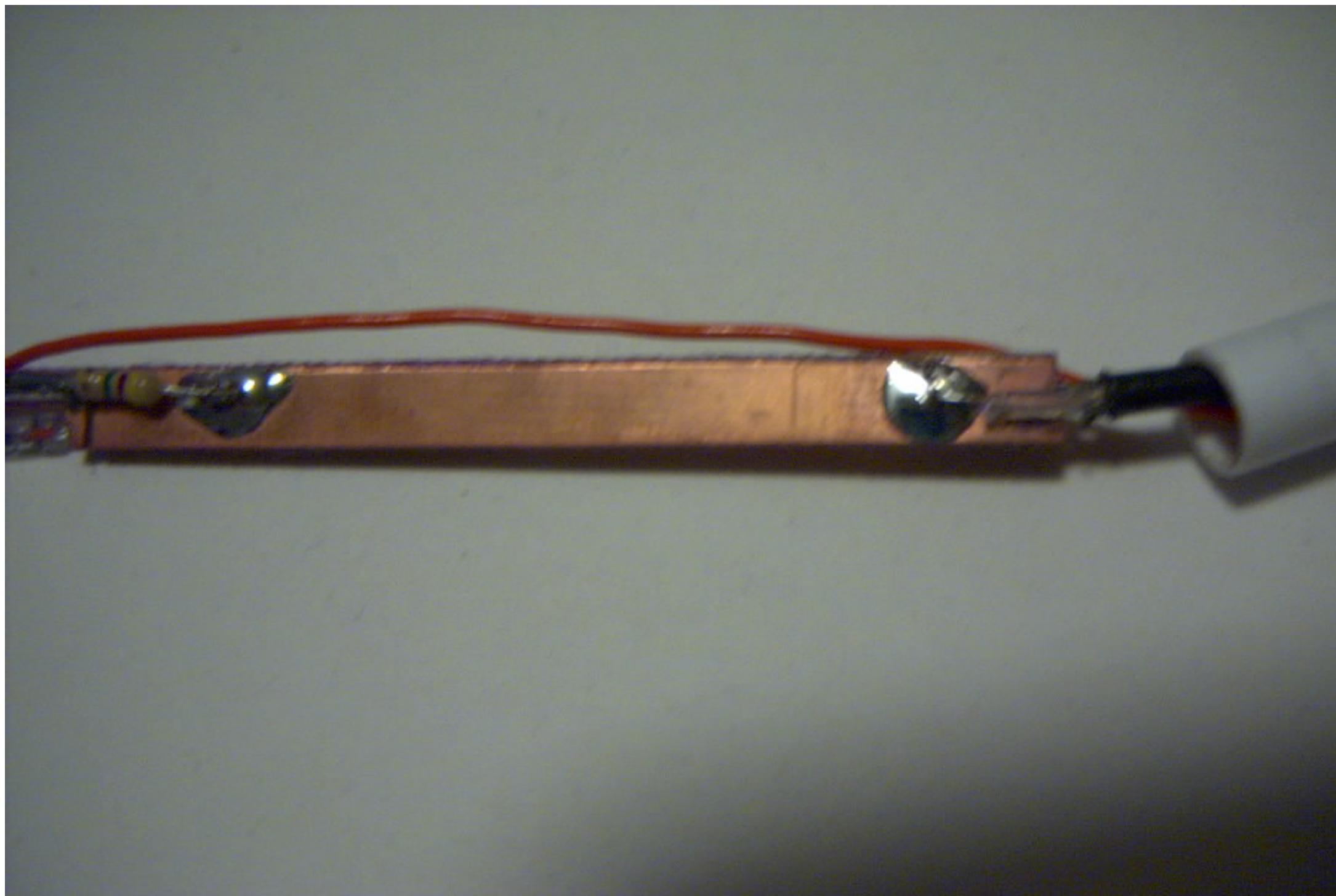


















How to Build Your Own Oscilloscope Probes

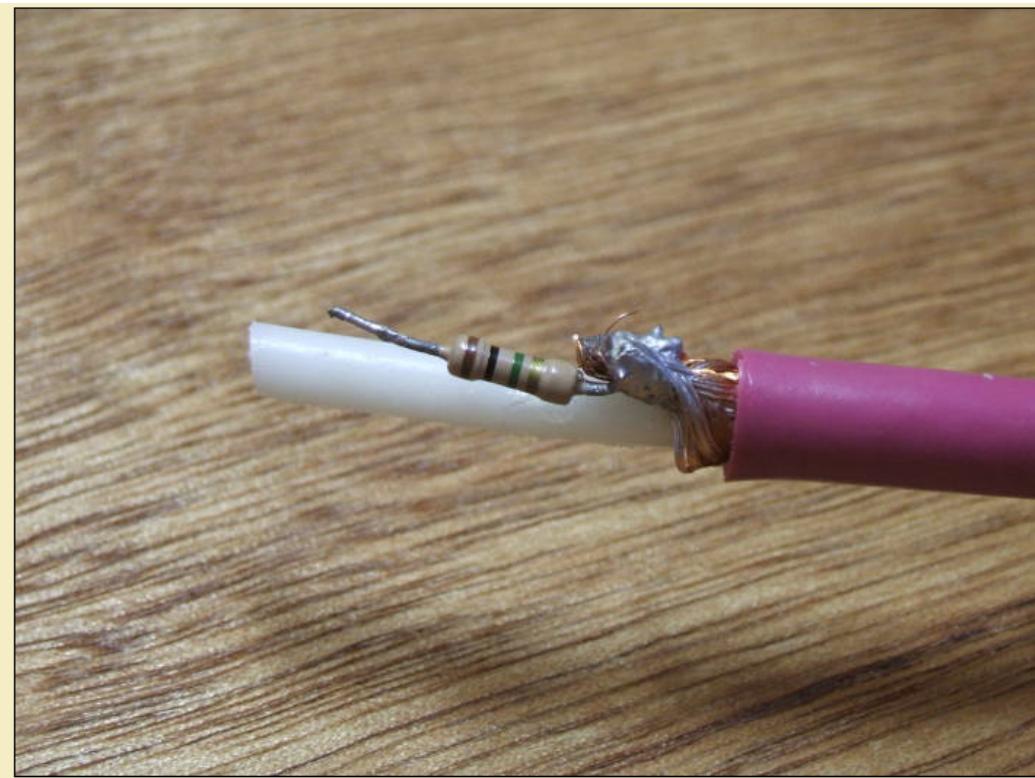
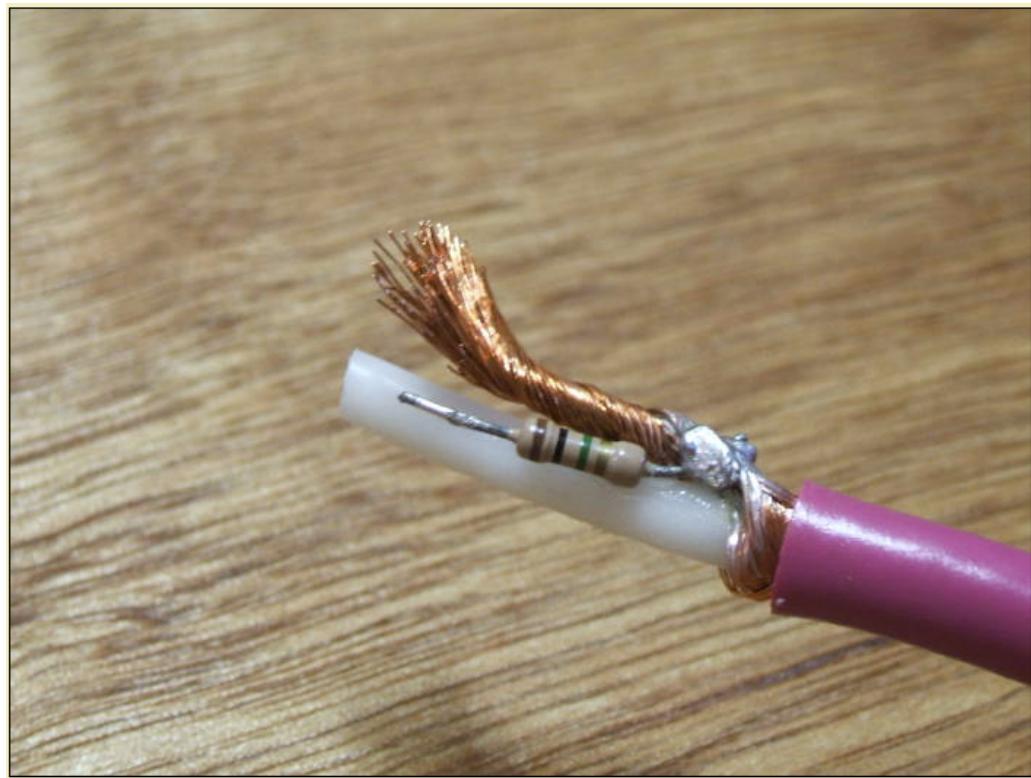


Here is the complete bill of materials:

- The pen
- A 2-meter piece of coaxial test cable with a BNC connector on one end
- Epoxy adhesive
- One alligator clip
- Copper-plated nail — 0.75" (20mm) long, packed as "weather-stripping nail".
- 1 MΩ and 5 MΩ resistors



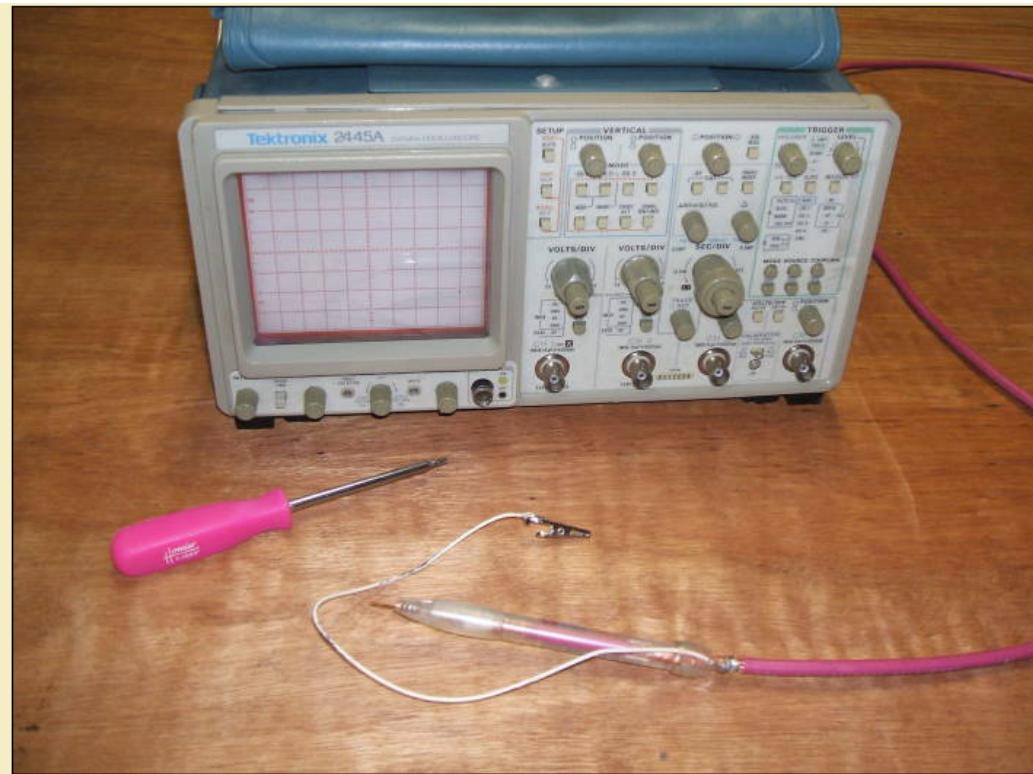




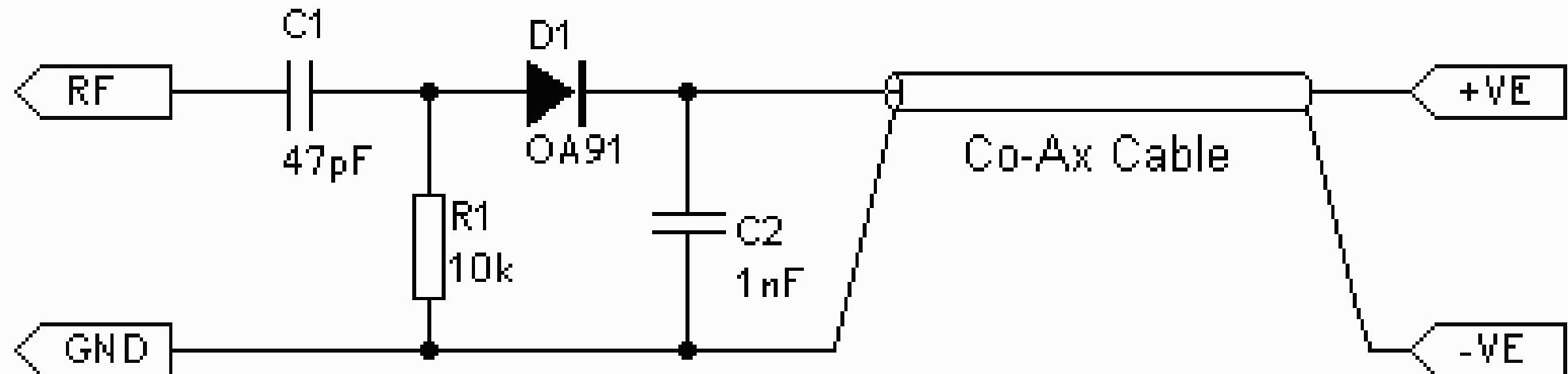


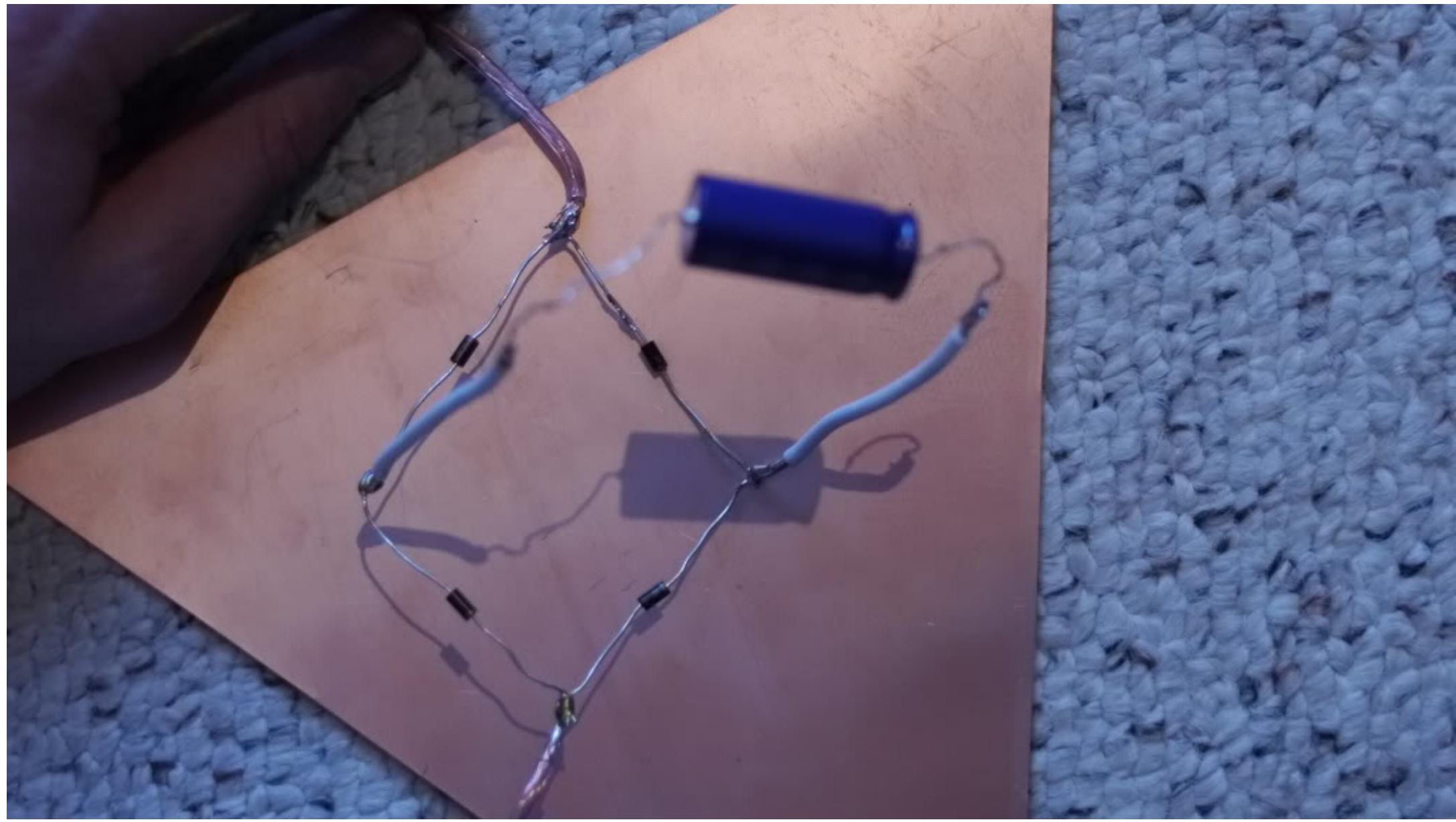






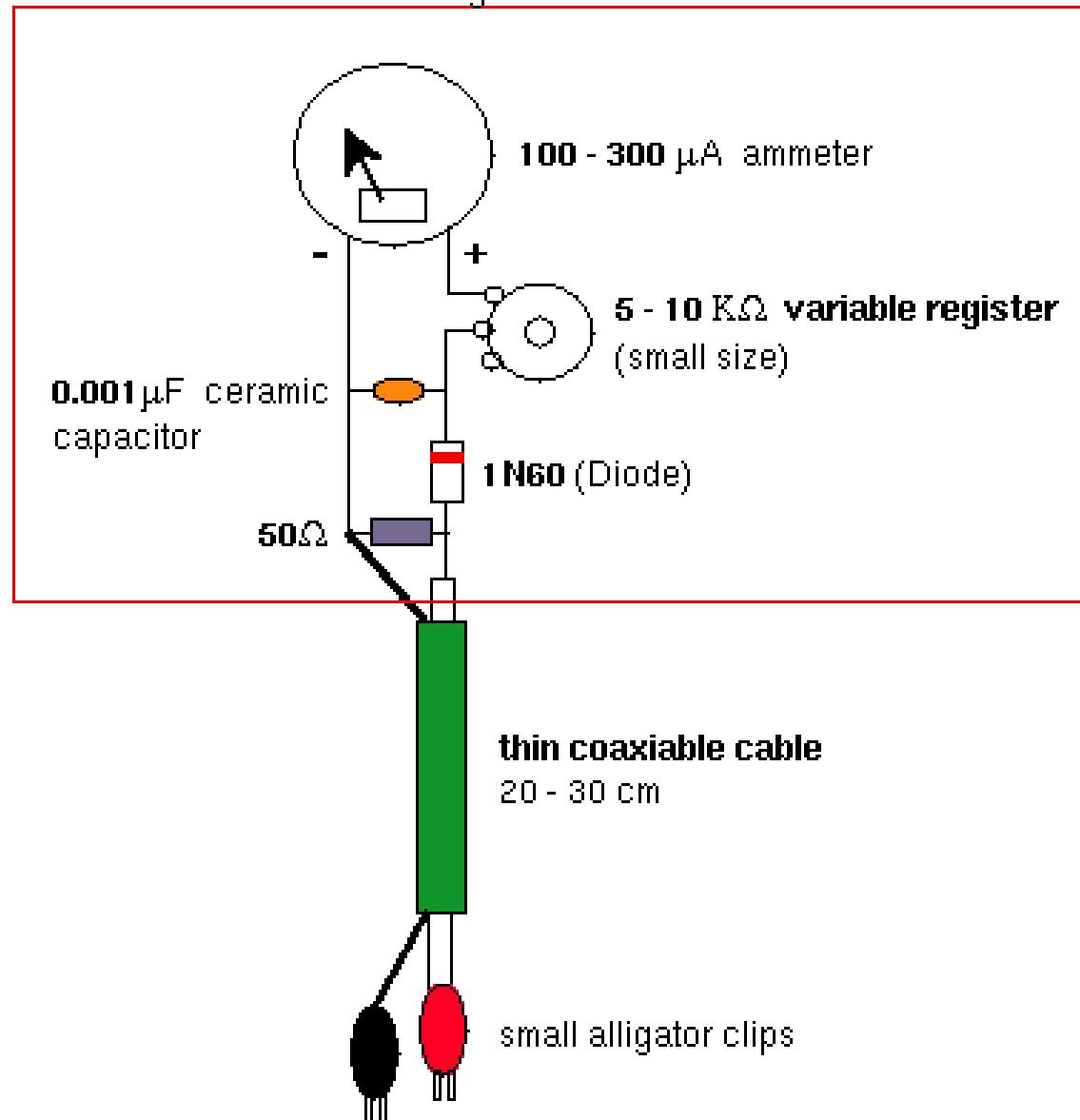
ESP





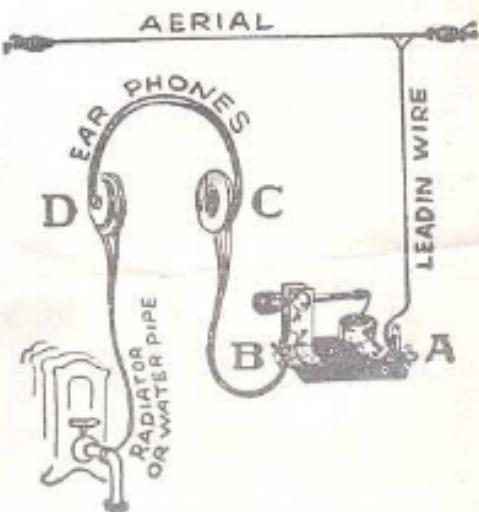
The simplest power meter

The shortest wiring is desirable in this area.



As for the ammeter, you can use an used one taking from junked audio amplifier, tape-recorder, radio-cassette, and so on.

Instructions for using
Philmore Crystal Radio Detector



This Detector is a radio in itself, as it is possible to get reception with it alone, provided you are within 25 miles of a broadcasting station. Under very favorable conditions reception is sometimes possible at much greater distances.

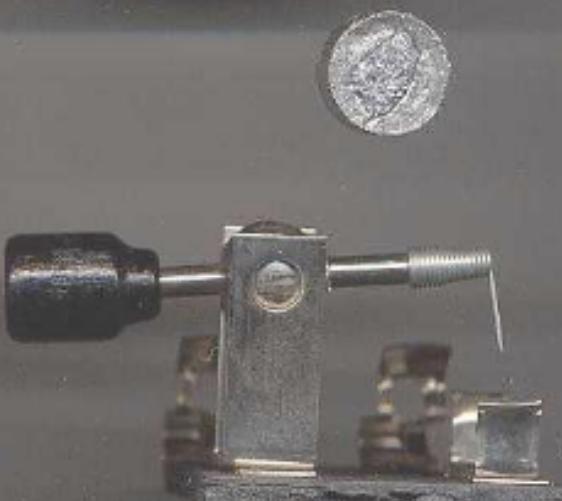
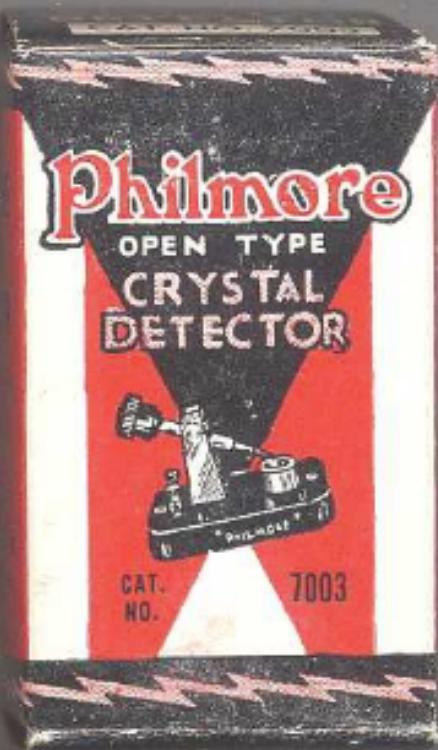
In order to get reception, you need an aerial wire and headphones. The AERIAL may consist of 100 to 125 feet of copper wire and two insulators. Attach insulators to each end of the wire. Stretch the wire allowing as little sag as possible. No part of this wire should touch any portion of the building or any other obstruction.

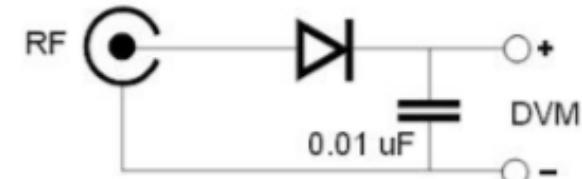
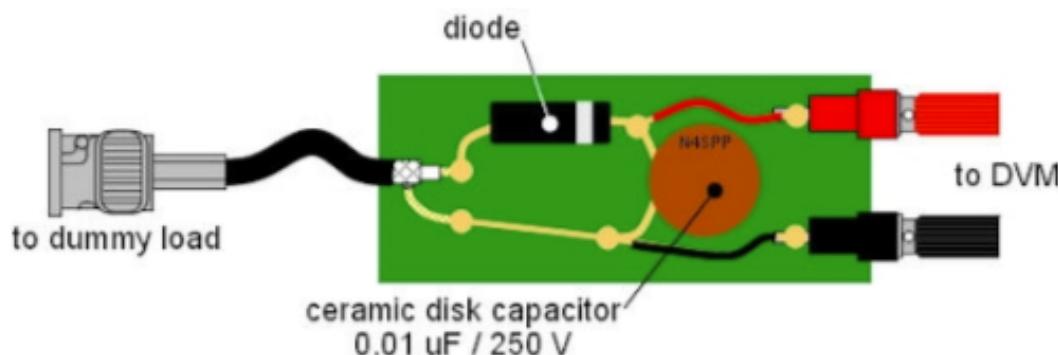
The LEAD-IN may consist of any desired length of covered wire which will reach from the aerial to the set. Scrape each end of the lead-in so that the wire is absolutely clean. Wind one end securely around the aerial wire. Place the other end in the clip marked "A".

There are two cords leading from the headphones. Connect the cord "C" as illustrated, from the earphone to clip "B" or the clip under the detector arm. The other wire, from the earphone marked "D" is to be connected to water pipe, radiator or any other suitable connection to be used for the ground.

You are now ready to receive broadcast. Find a sensitive spot on the crystal by means of the cat's whisker. You may find it necessary to "hunt" for live spots on the crystal as only some parts of a crystal are sensitive, and unless you find these sensitive spots you will not hear anything.

If you do not at first get results, do not blame the detector, as every set is tested before being shipped and will positively get results under the proper conditions. Do not write in and ask what the trouble is for a personal examination of your entire hook-up will be necessary. Go over your aerial, ground, various connections, etc., and if necessary get someone who thoroughly understands radios to help you.



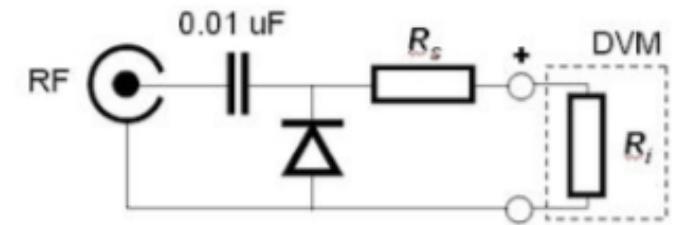
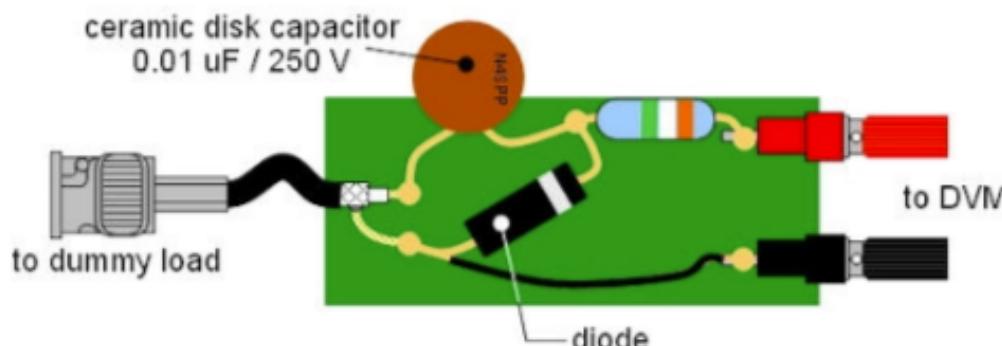


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A simple RF-probe

Obviously, this circuit will be fooled by a DC-offset on the RF signal. We can fix this by swapping the diode and the capacitor. Note that this is not necessary if you measure an RF voltage via a transformer, such as a [directional coupler](#).

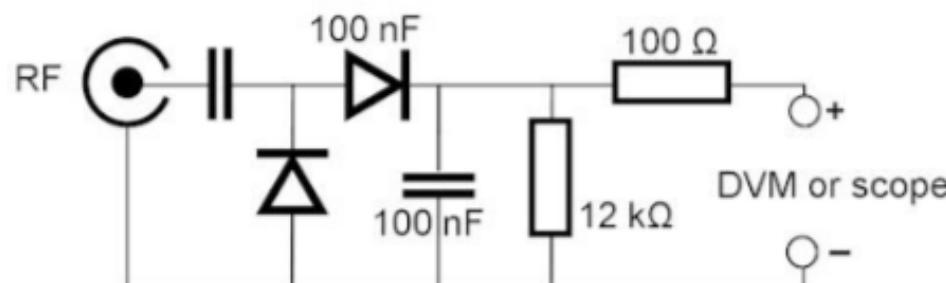
We can also make life a little easier by including a voltage divider with a scaling factor that is equal to the reciprocal of $\sqrt{2}$. Then the output voltage will be the RMS value that we are interested in. We can make a voltage divider where one resistor is the input impedance of the DVM. My DVM has a published input resistance of $10 \text{ M}\Omega$. The second resistor should be $4\text{M}14 \Omega$, since $10 / (10+4.14) = 1 / \sqrt{2}$. So $3\text{M}9 + 220\text{k} = 4\text{M}12$ would be a good choice. This approach is shown below. Note that the resistor should be non-inductive (e.g., bulk-metal-foil or carbon).



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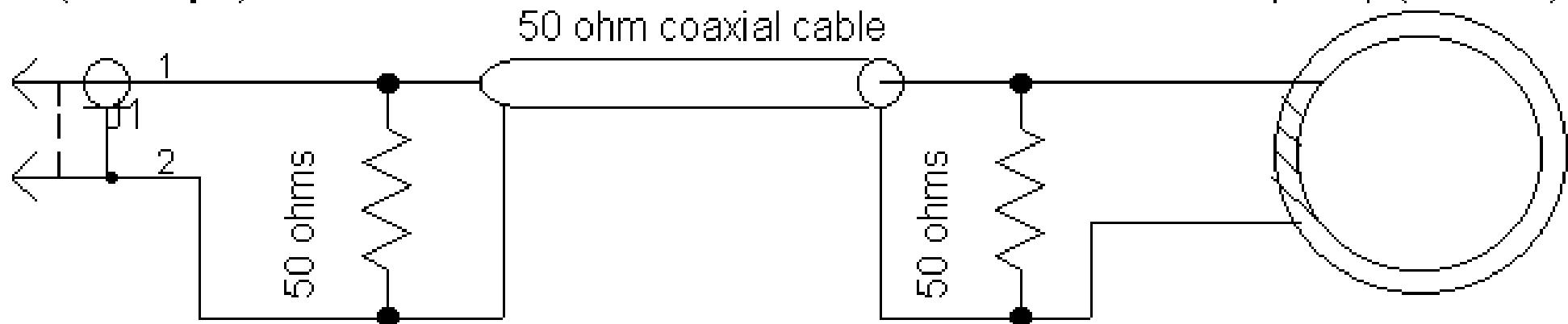
RF-probe with DC-block and peak-to-RMS scaling

A variation on this, with a full-wave rectifier, is shown below:

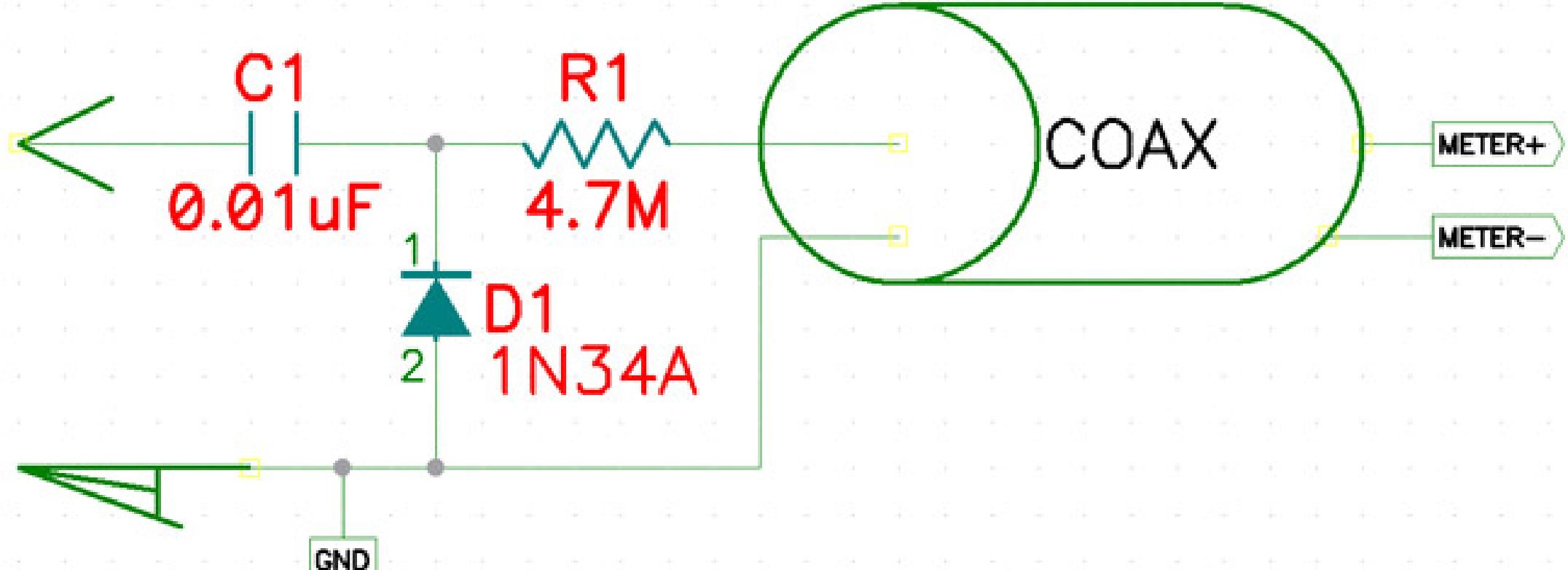


RF Current Probe

BNC (to scope)



toroidal pickup (10 turns)



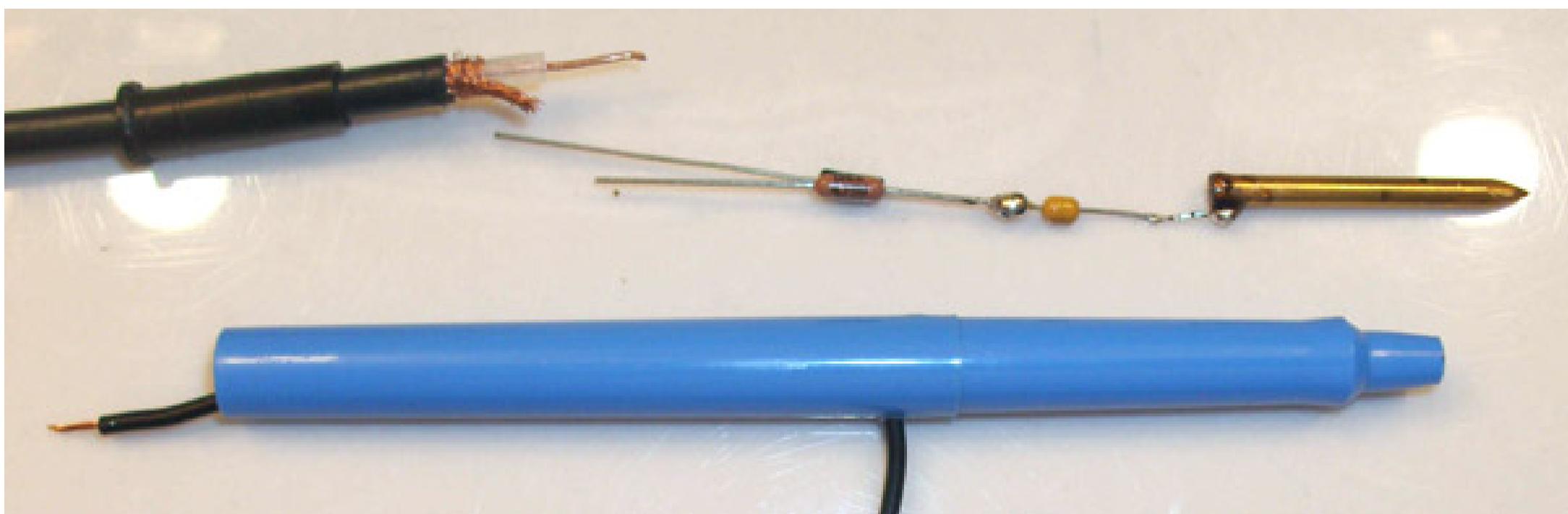
Simple RF Probe

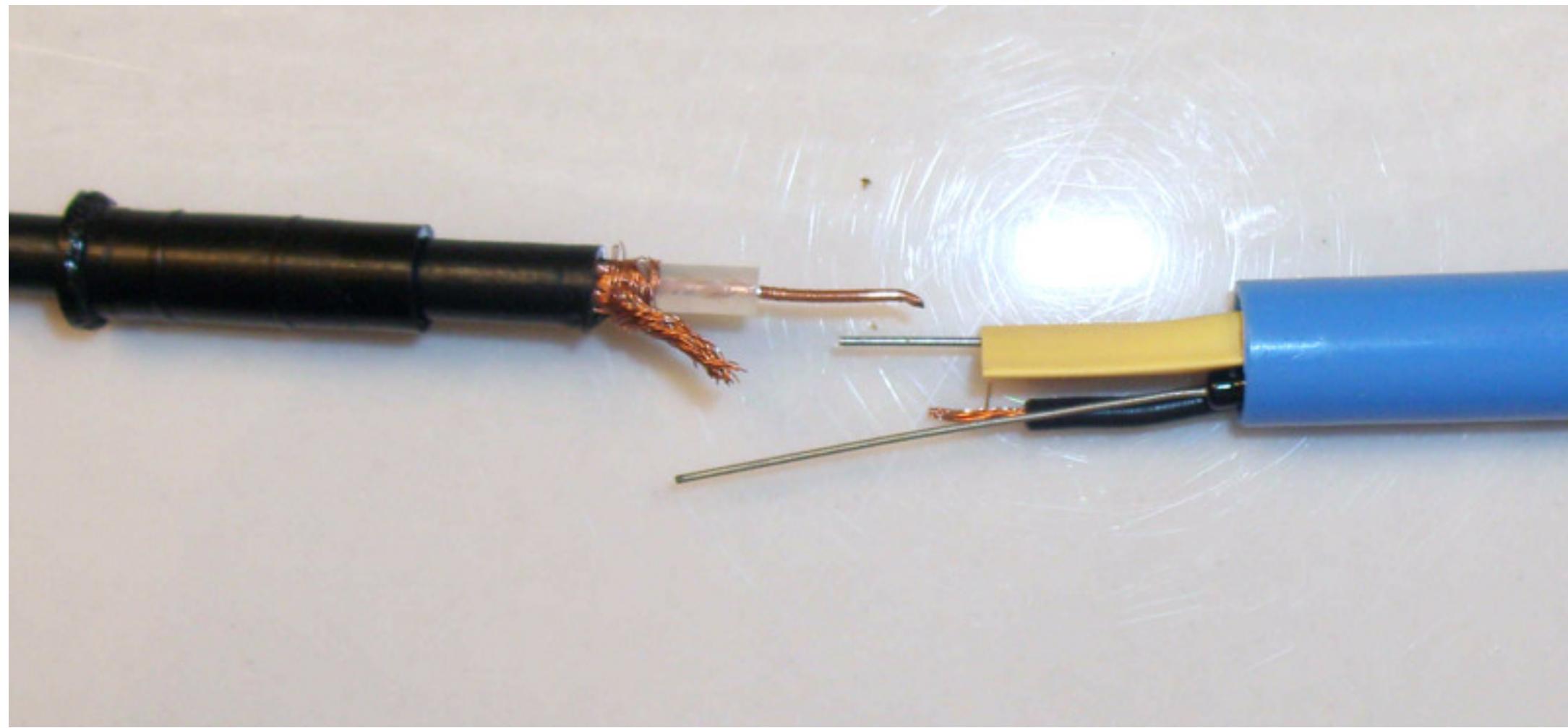


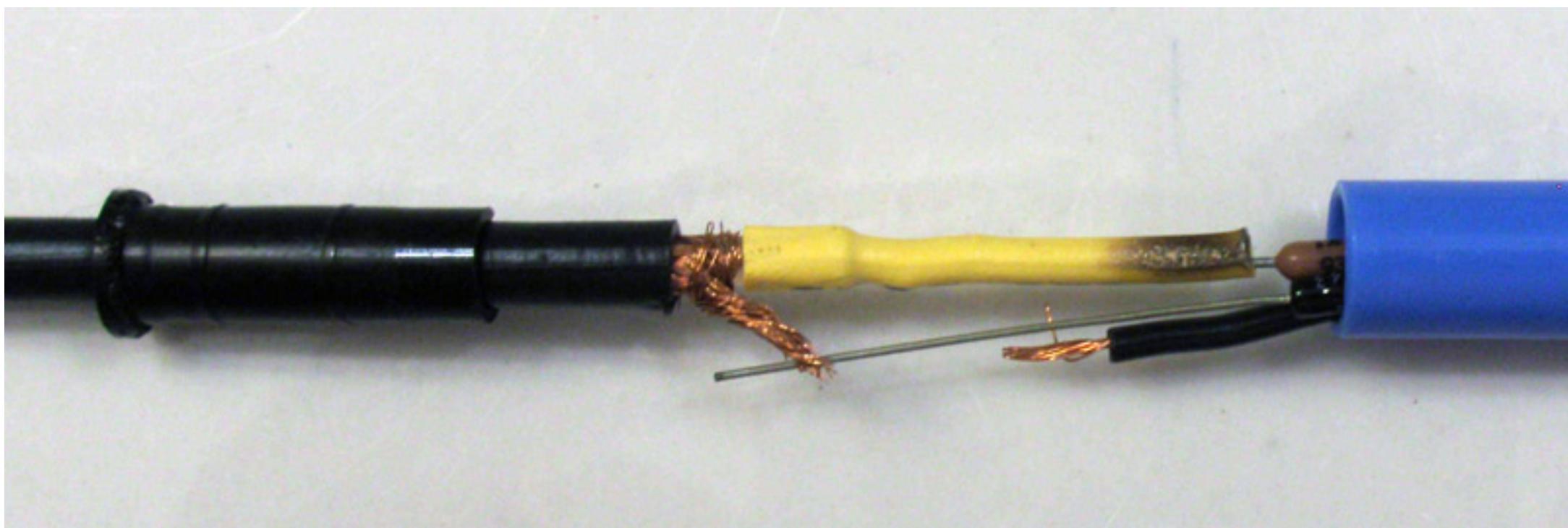






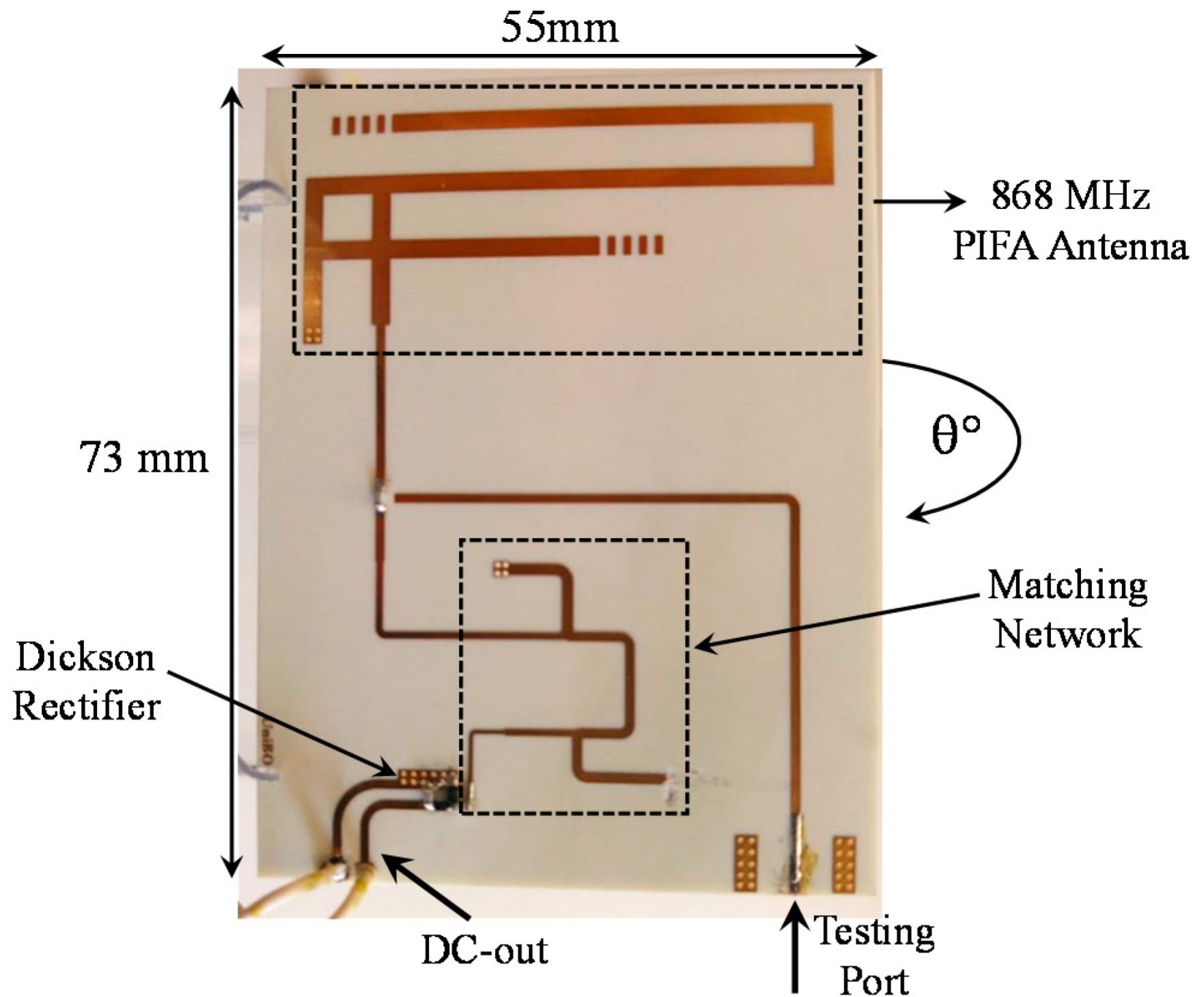






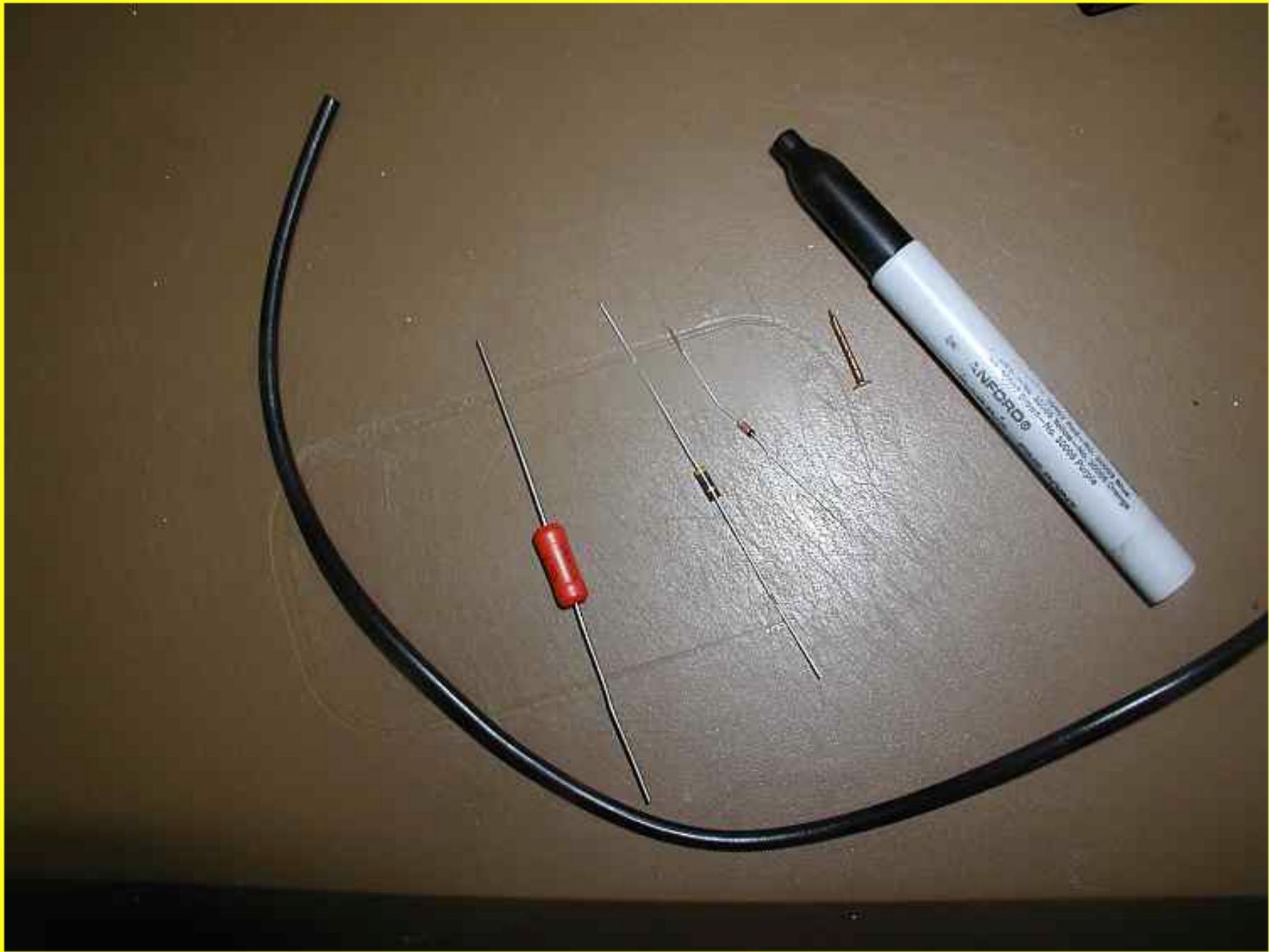


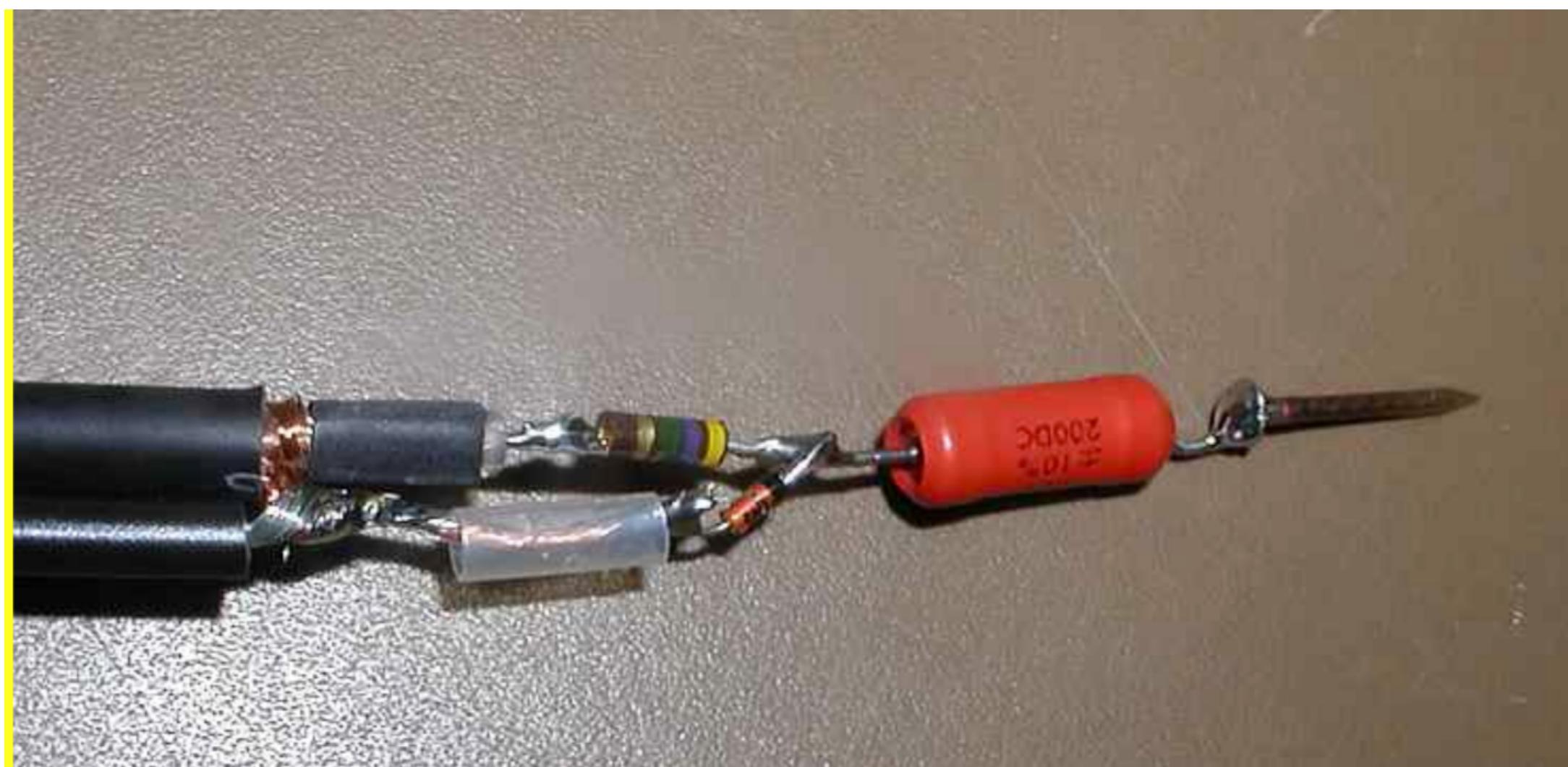






I used a .02ufd cap because it was the perfect physical size, a 4.7 meg resistor, and a 1N34A diode. I had a nice, flexible, 1 copper nail that would be easy to solder to for a tip.

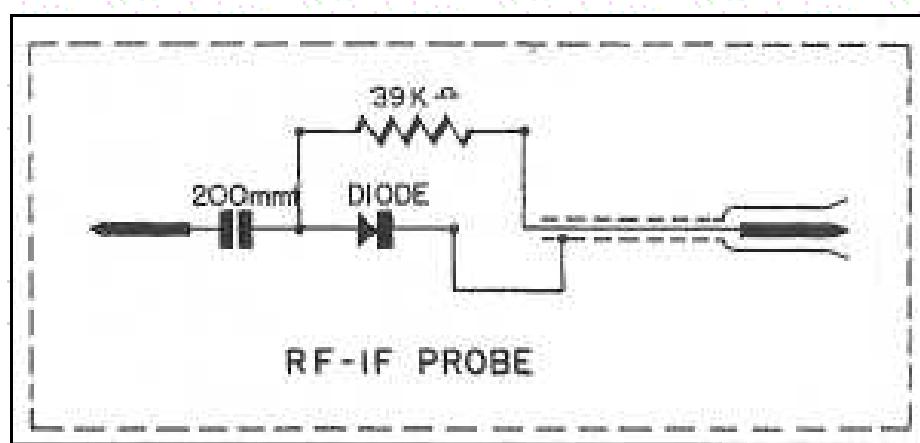


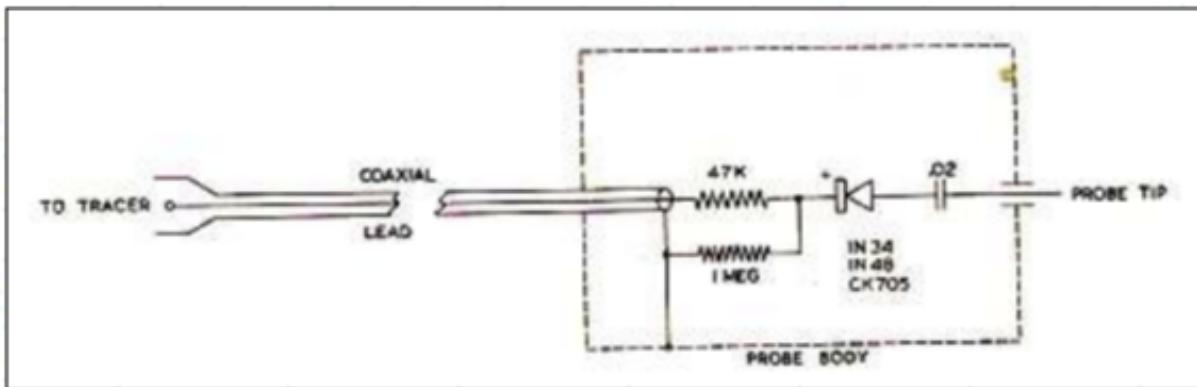




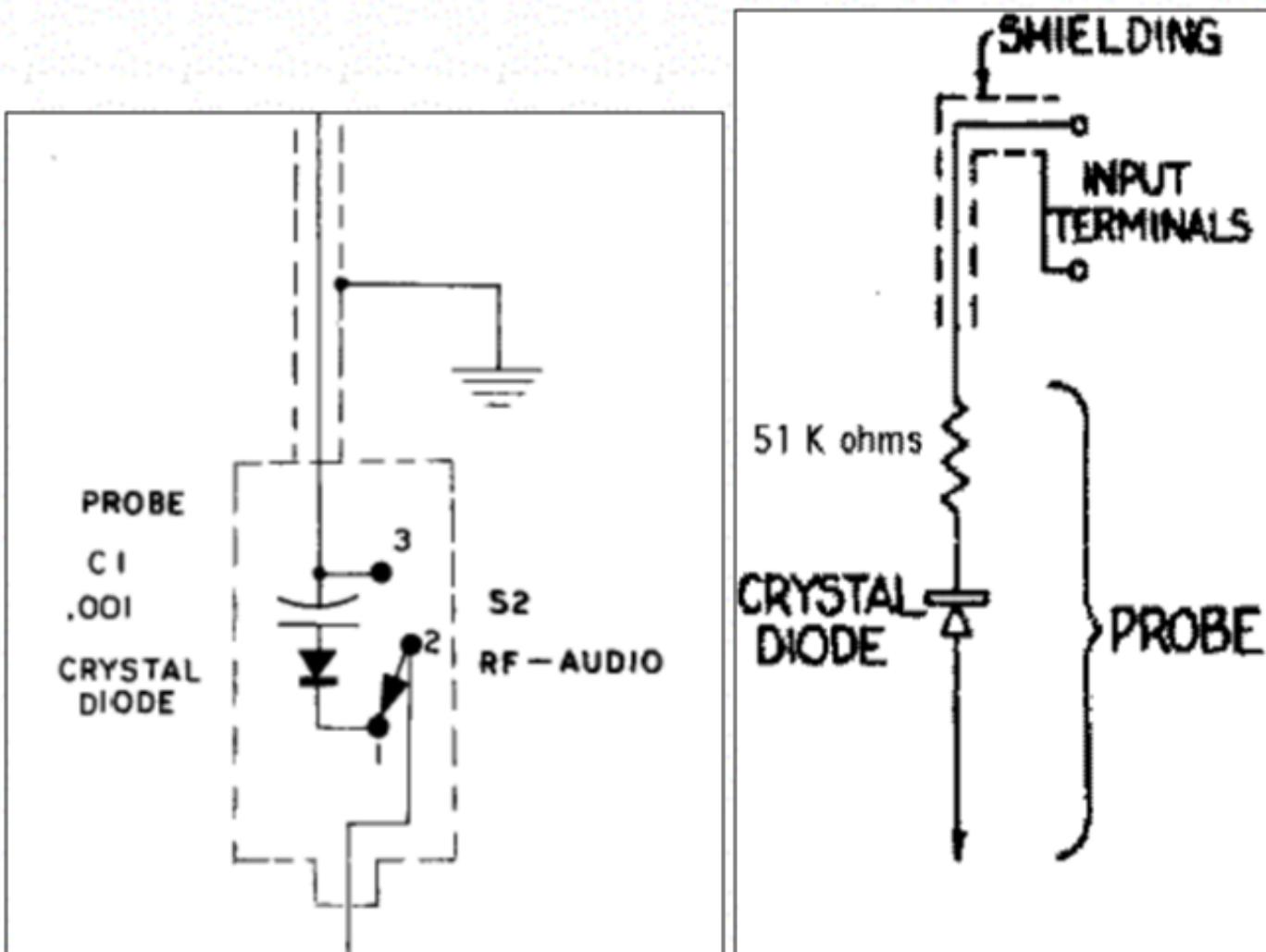


**Accurate Instrument model 153 and its RF probe schematic
courtesy of John Lescaud.**

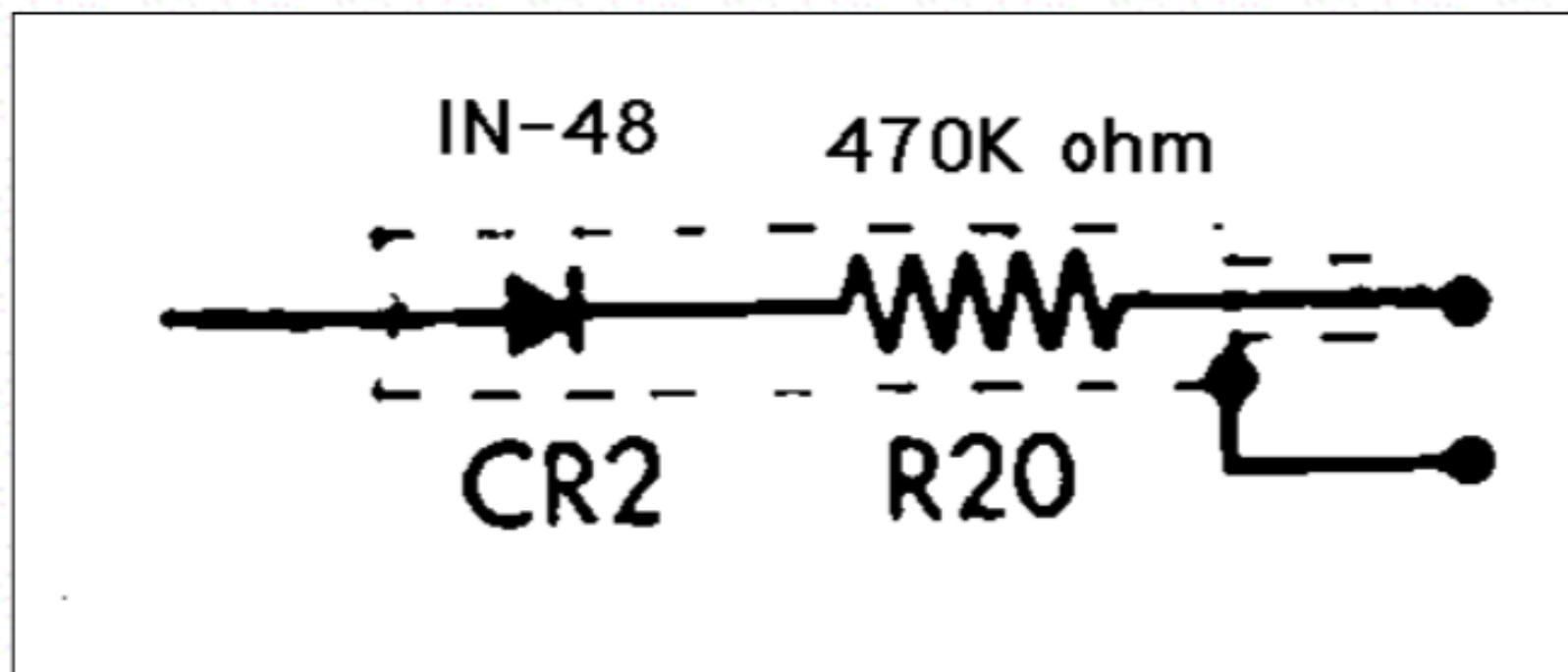




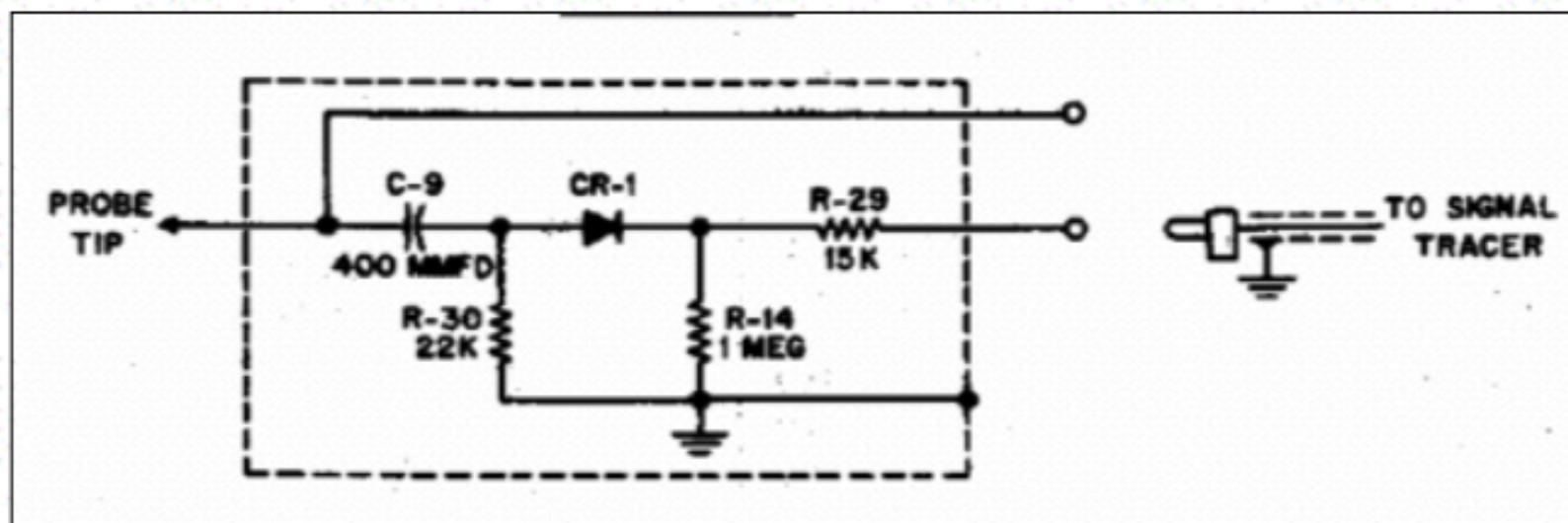
Heath T-3 signal tracer probe



Heath T-4 or IT-12 signal tracer probe (left) - - - Eico 145 signal tracer probe (right)



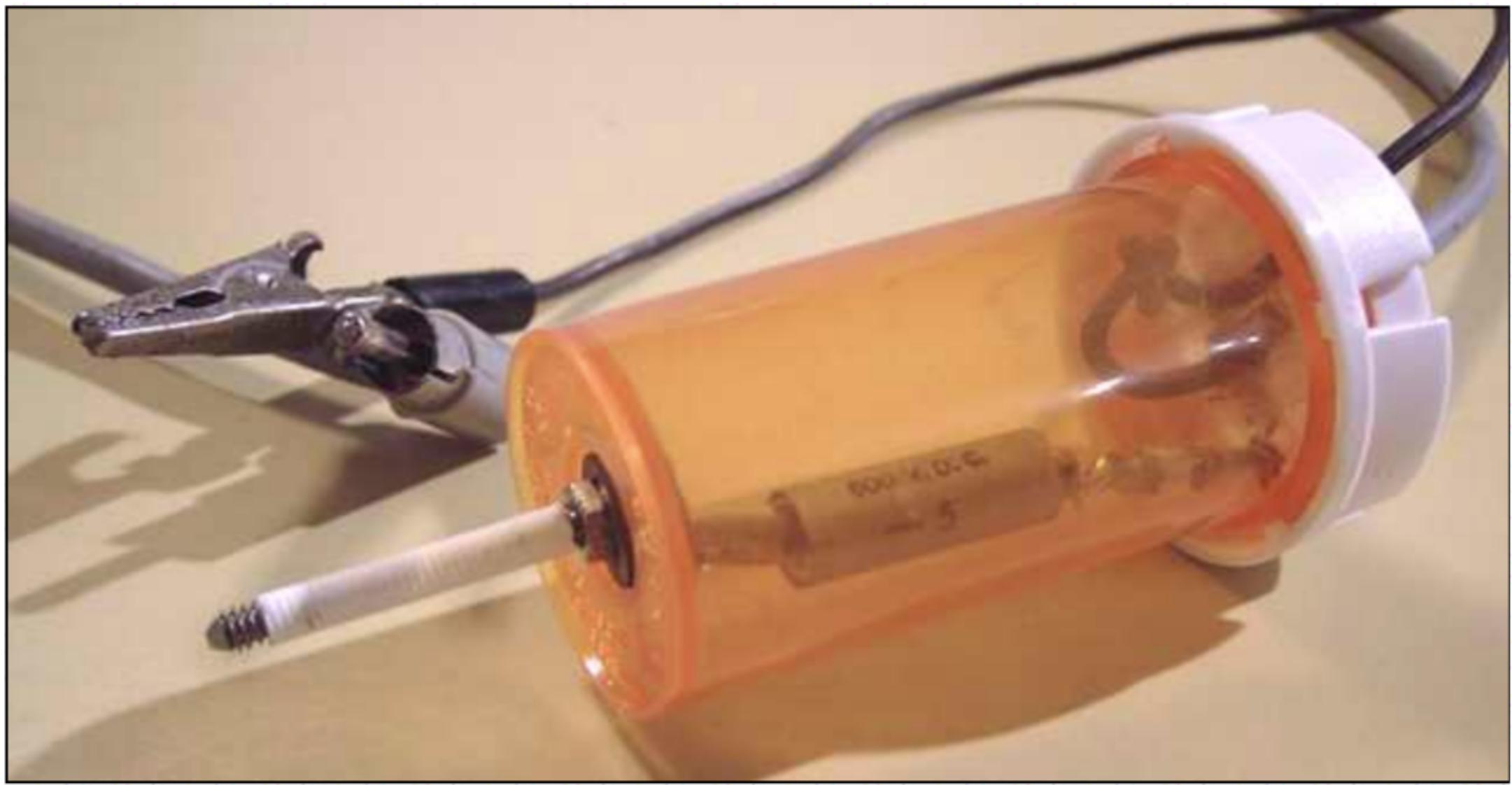
Eico 147a signal tracer probe



Knight-kit signal tracer probe

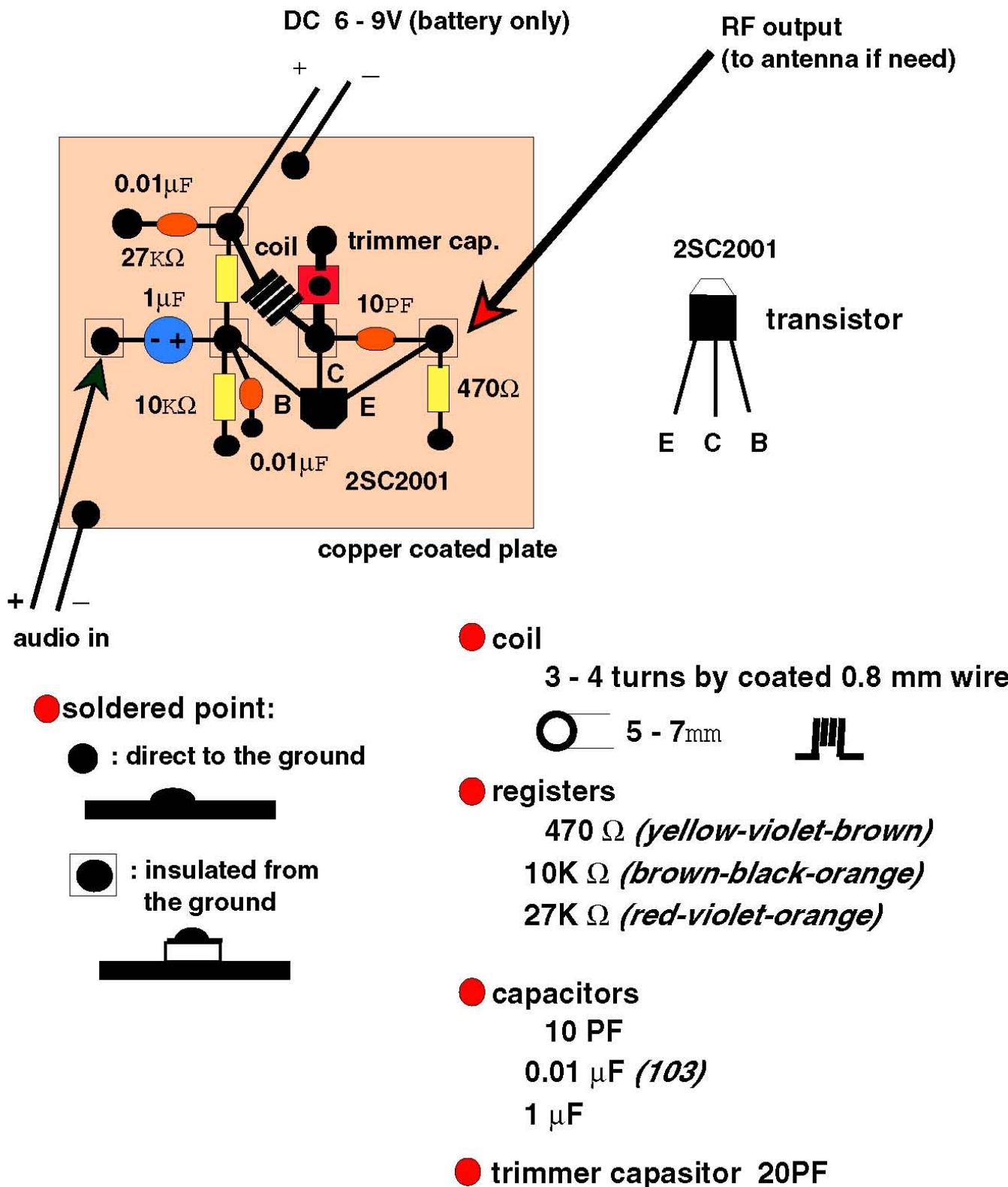


Pill bottle signal tracer probe



KIS (Keep It Simple) pill-bottle signal tracer probe

Making the simplest Transmitter



Design – Physical System

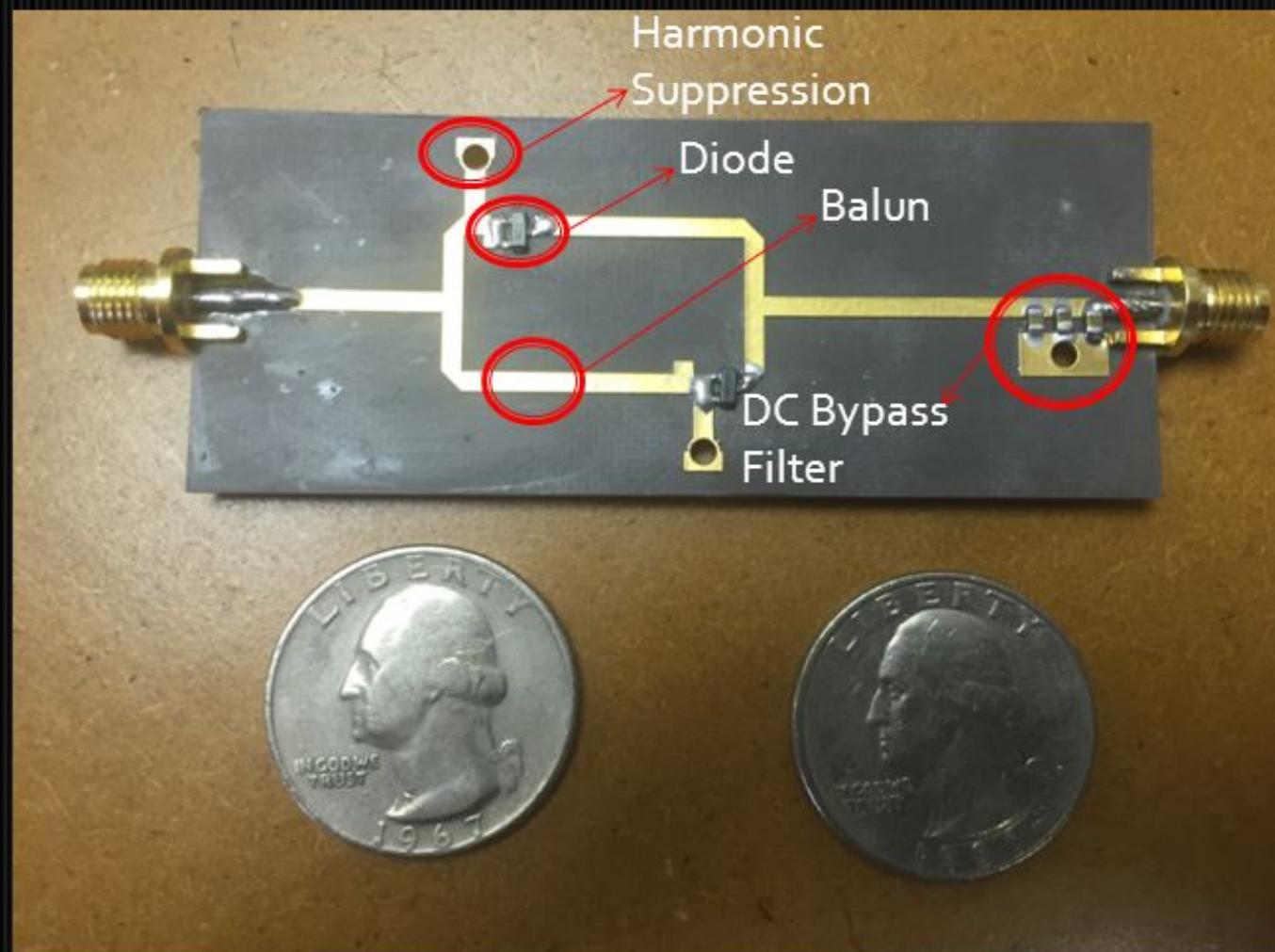


Fig 5. RF to DC converter

List of components

V1 = valve ECC81 or 12AT7

R1 = 10Mohm

R2 = 100Kohm

R3 = 47Khohm

R4 = potentiometer 22Kohm linear

R5 = 1Mohm

R6 = 1Kohm

C1 = variable capacitor in air 20 + 20pF

C2 = ceramic 47pF

C3 = 10nF minimum 100V

C4 = 2.2nF

C5 = 25uF 16V electrolytic

C6 = 10nF 250V or more

L1 = 7 spiers spaced 1.5mm, diameter 1.4mm thread on 1cm support

L2 = 2 spaced spaced 1.5mm, diameter 1.4mm thread on 1cm support

JAF1 = 5-10uH Noval

valve plinth with screen support or take the screen separately.

Stereo jack to be connected with the two earphones in series (do not connect the central mass terminal).

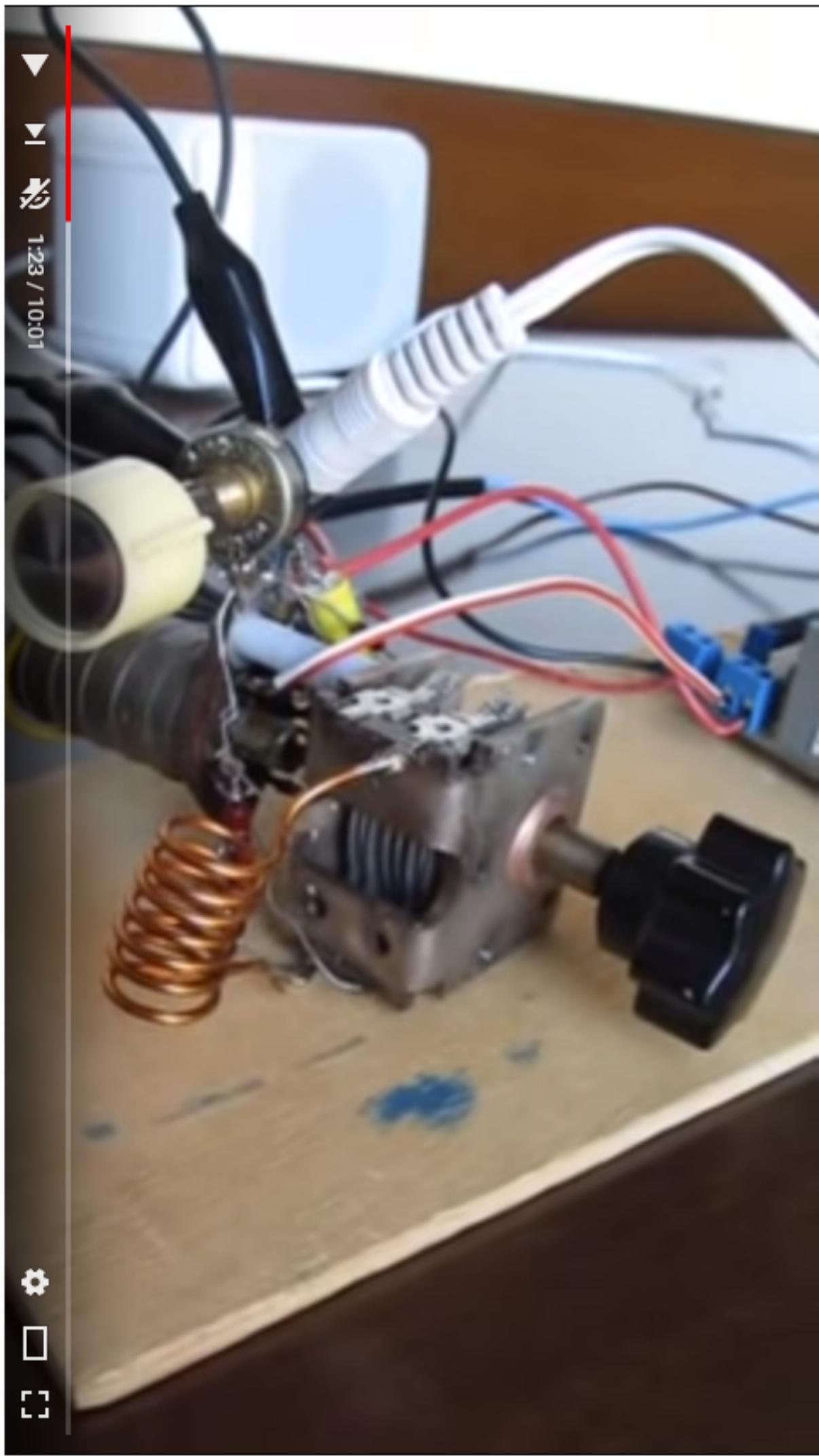
2 knobs for tuning and reaction.

mammoths for connections.

Directional stylus antenna.

For resistances to the maximum use from half a watt but also 1 / 4W should not give problems.

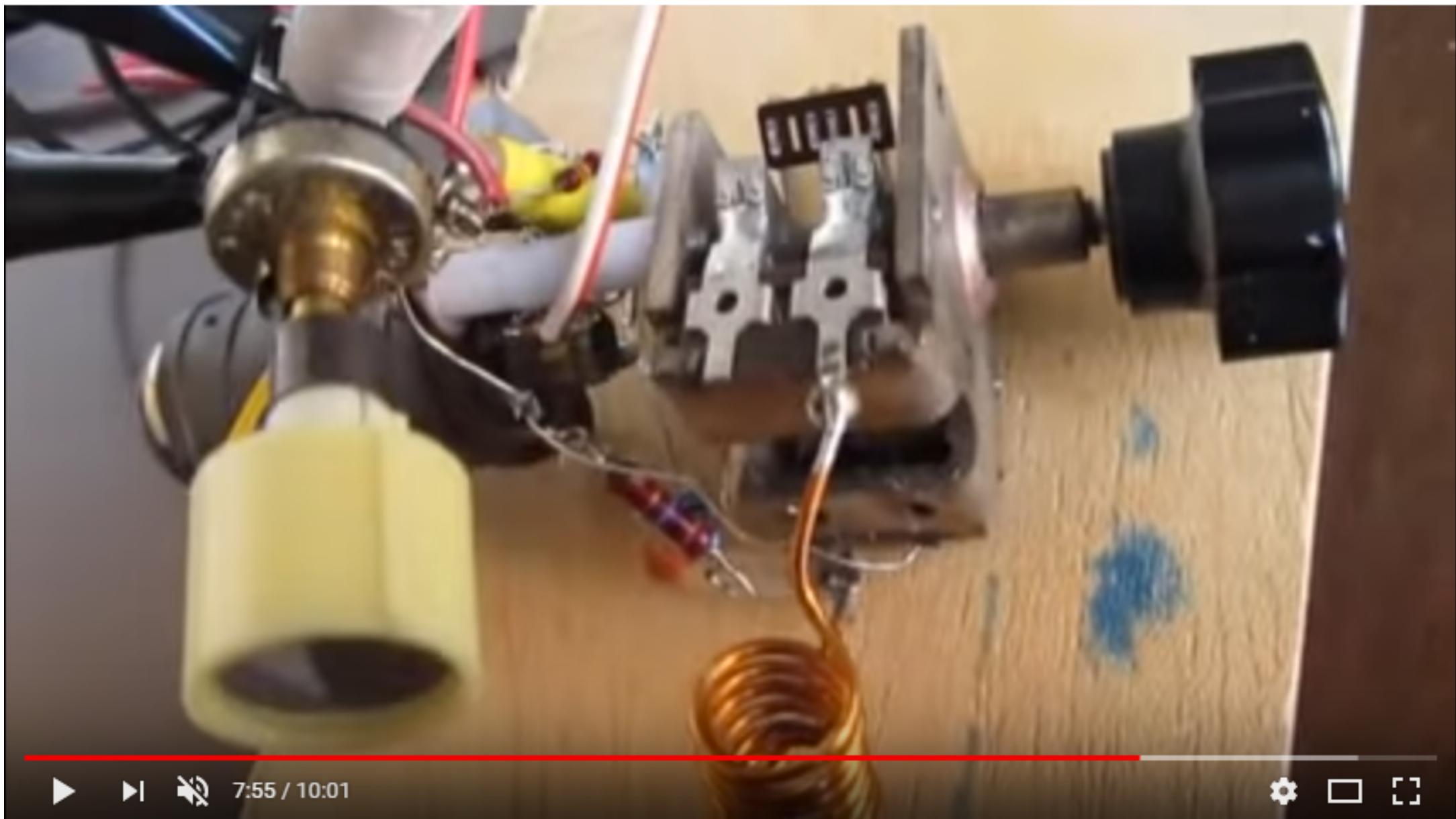
Ricevitore in superreazione con valvola ECC81 12AT7 Primo montaggio.mp4





7:51 / 10:01





▶

▶

🔇

7:55 / 10:01

⚙

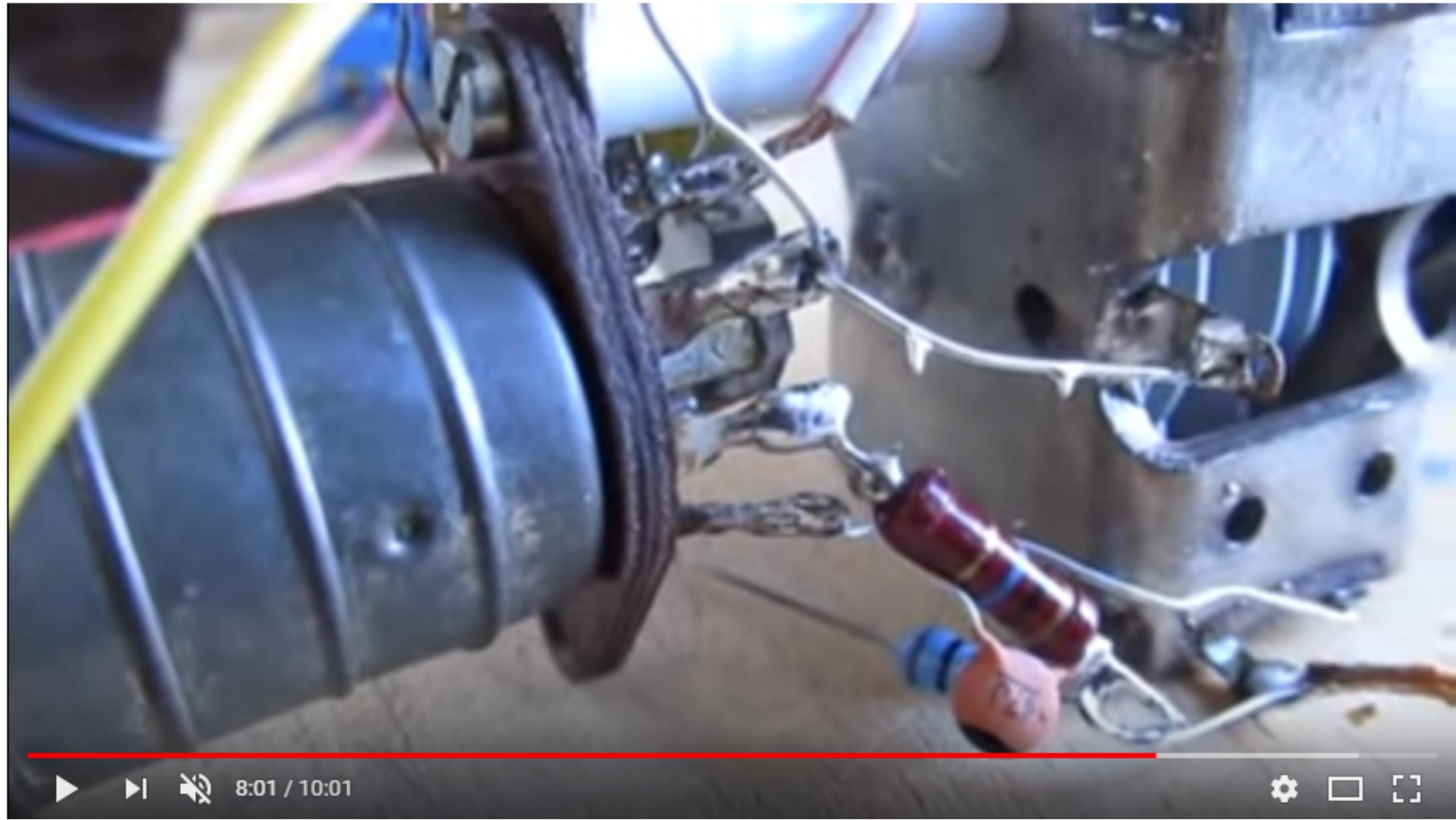
□

▢



7:58 / 10:01





8:01 / 10:01



 COMELIT
Ref.: 82144
PR: 230V ~ ~ 0.2A
SEC: 230V ~ ~ 0.2A
SEC: 110V ~ ~ 0.1A
T₁: 55°C T₂: 60°C
 11002396/3323

 CE 
EI 38-12G/7008/112
230 V 50-60 Hz (1-4)
Prim. -> 32 mA T
9 V - 3.2 VA (7-8)
f_a 70/B 10

2.2K
1N

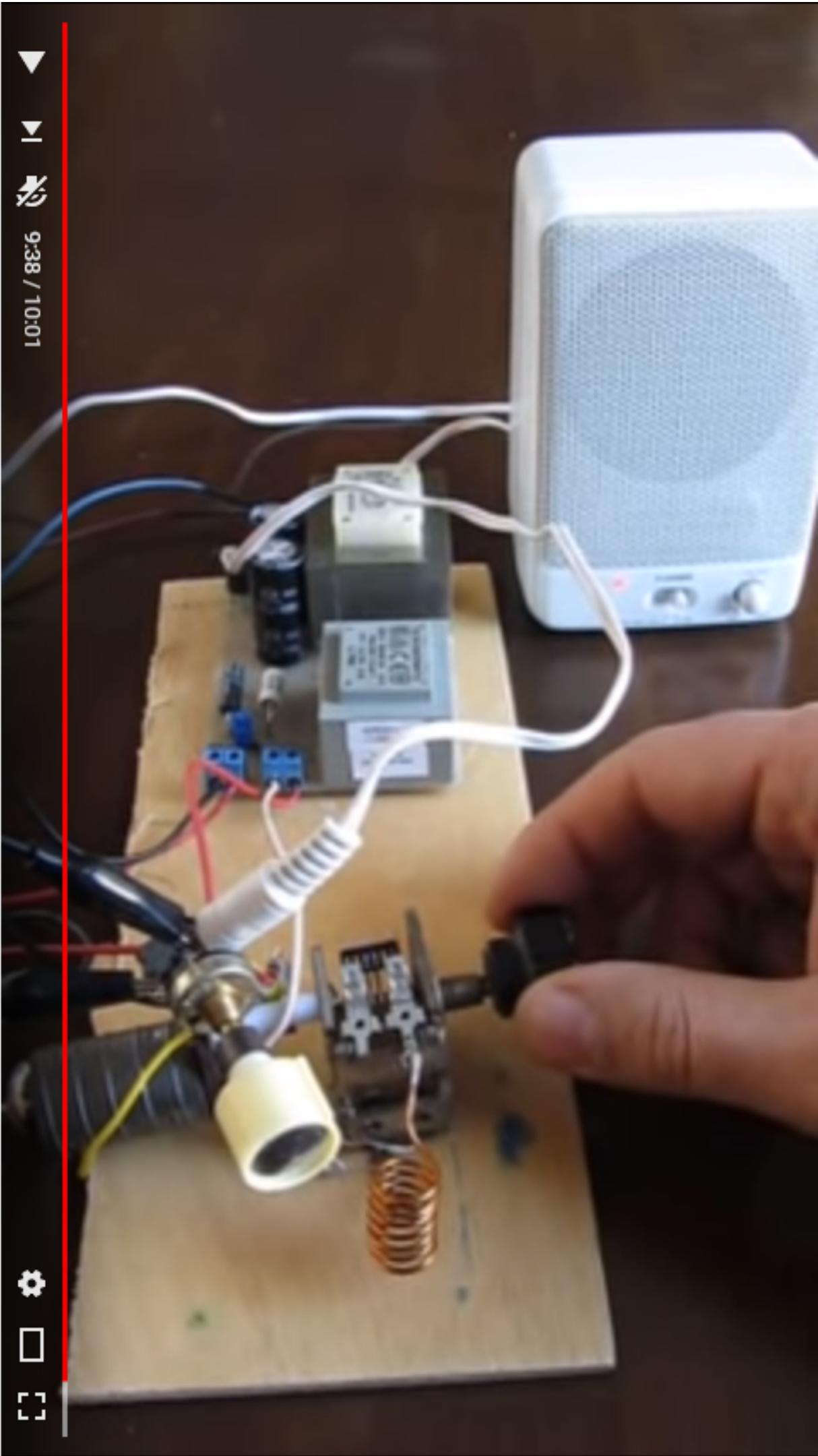
100Ω
0.5W



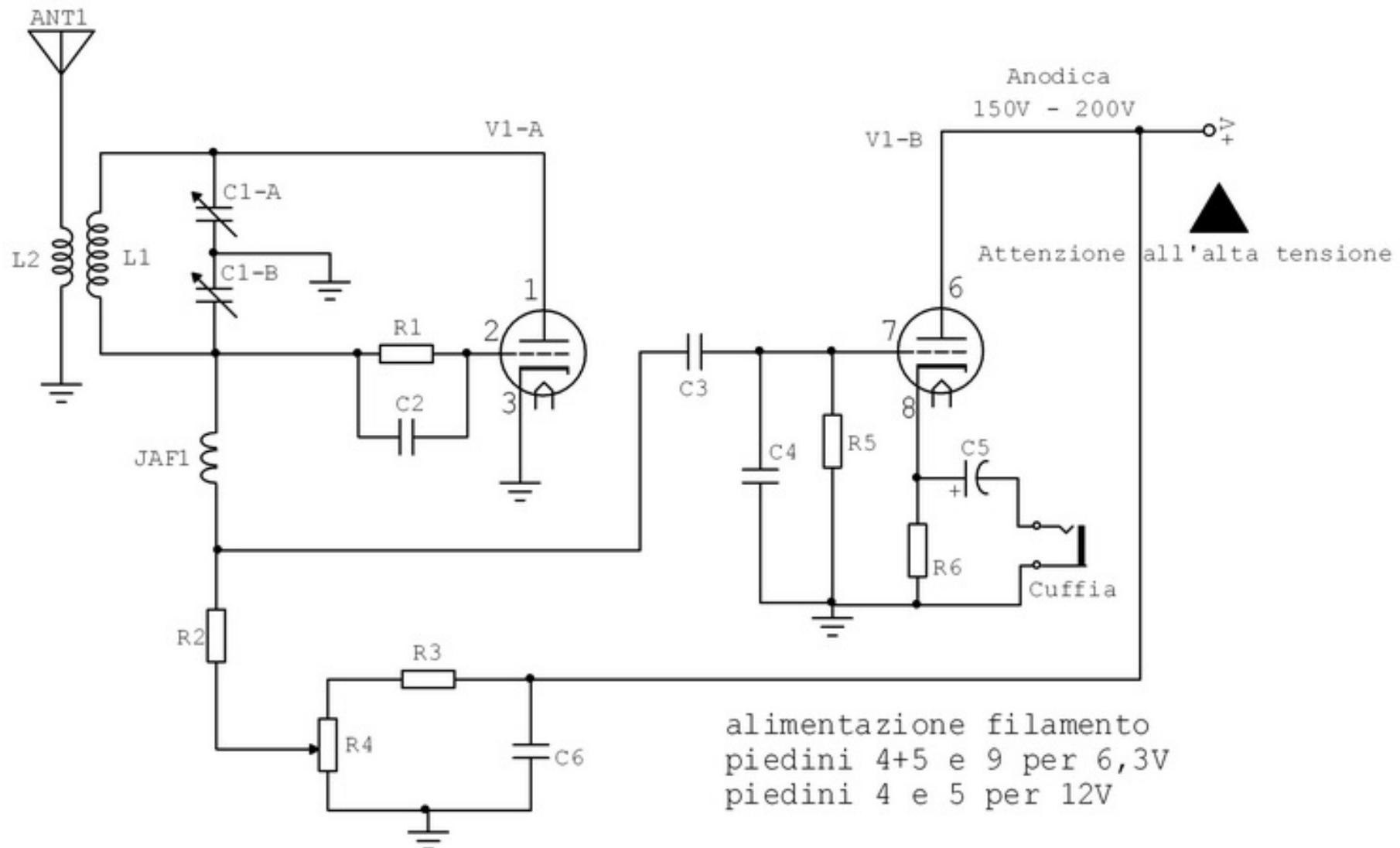
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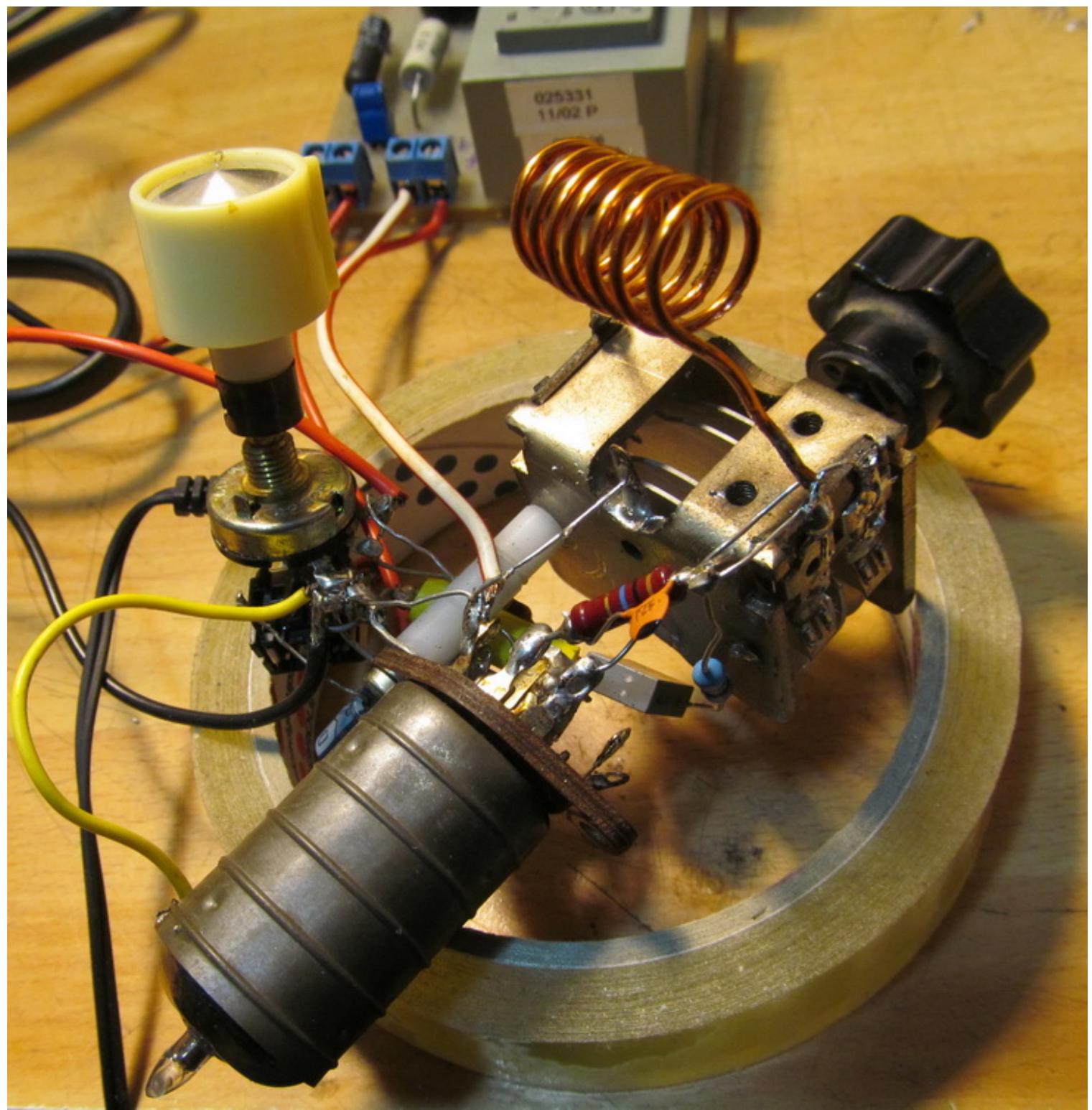
◀ ▶ 🔍 9:38 / 10:01

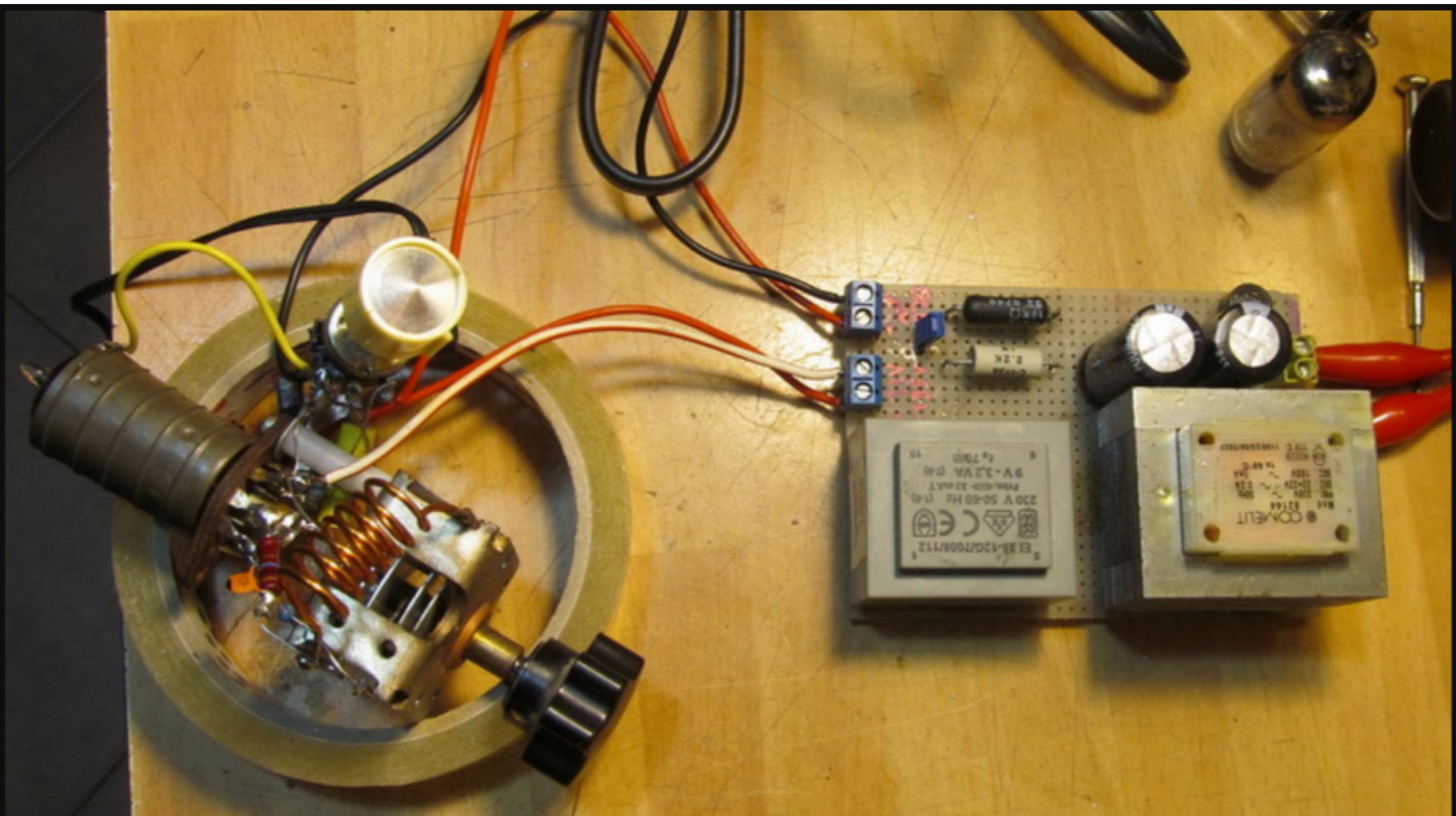


Superreaction receiver with ECC81 Regenerative RX with 12AT7

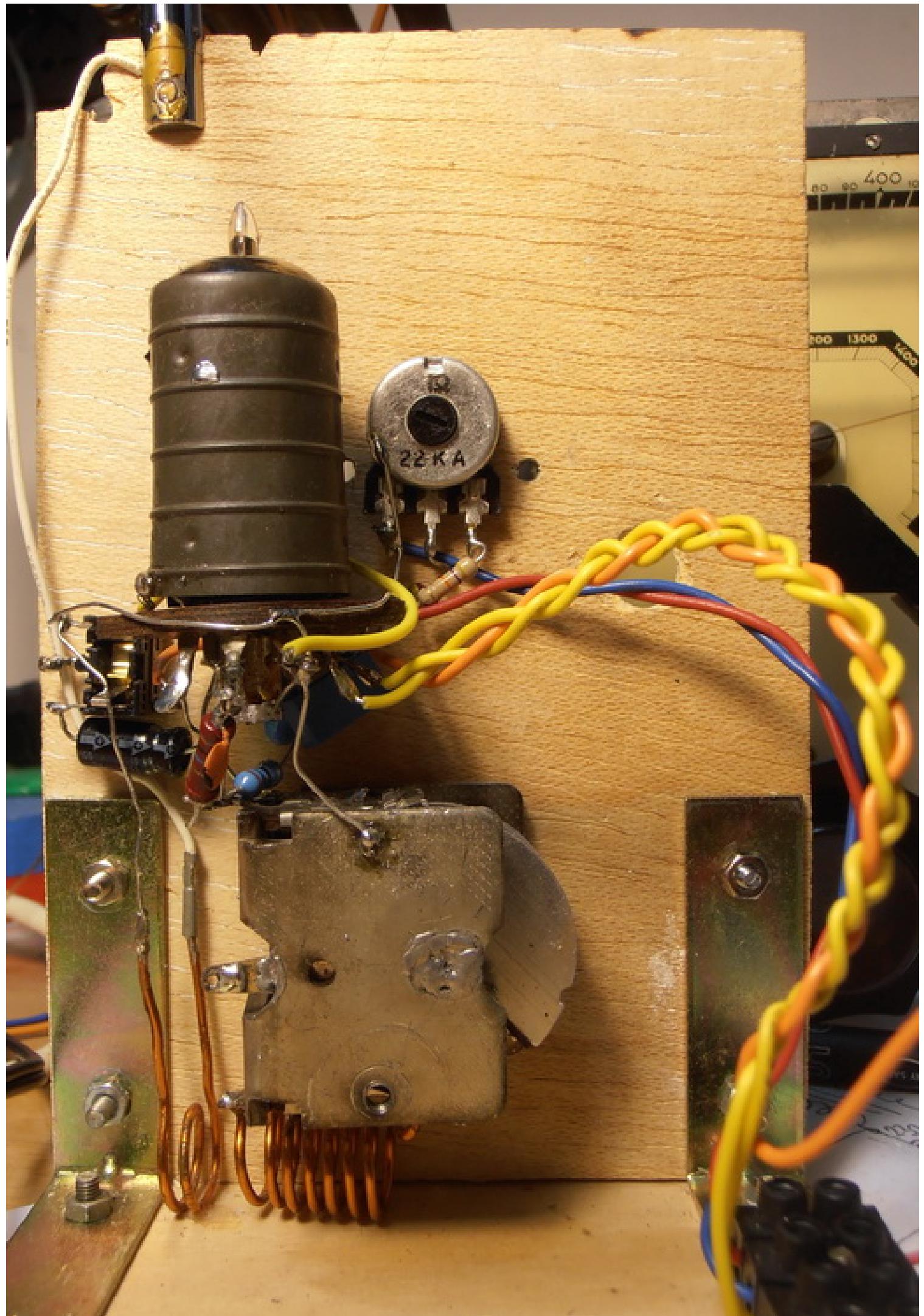


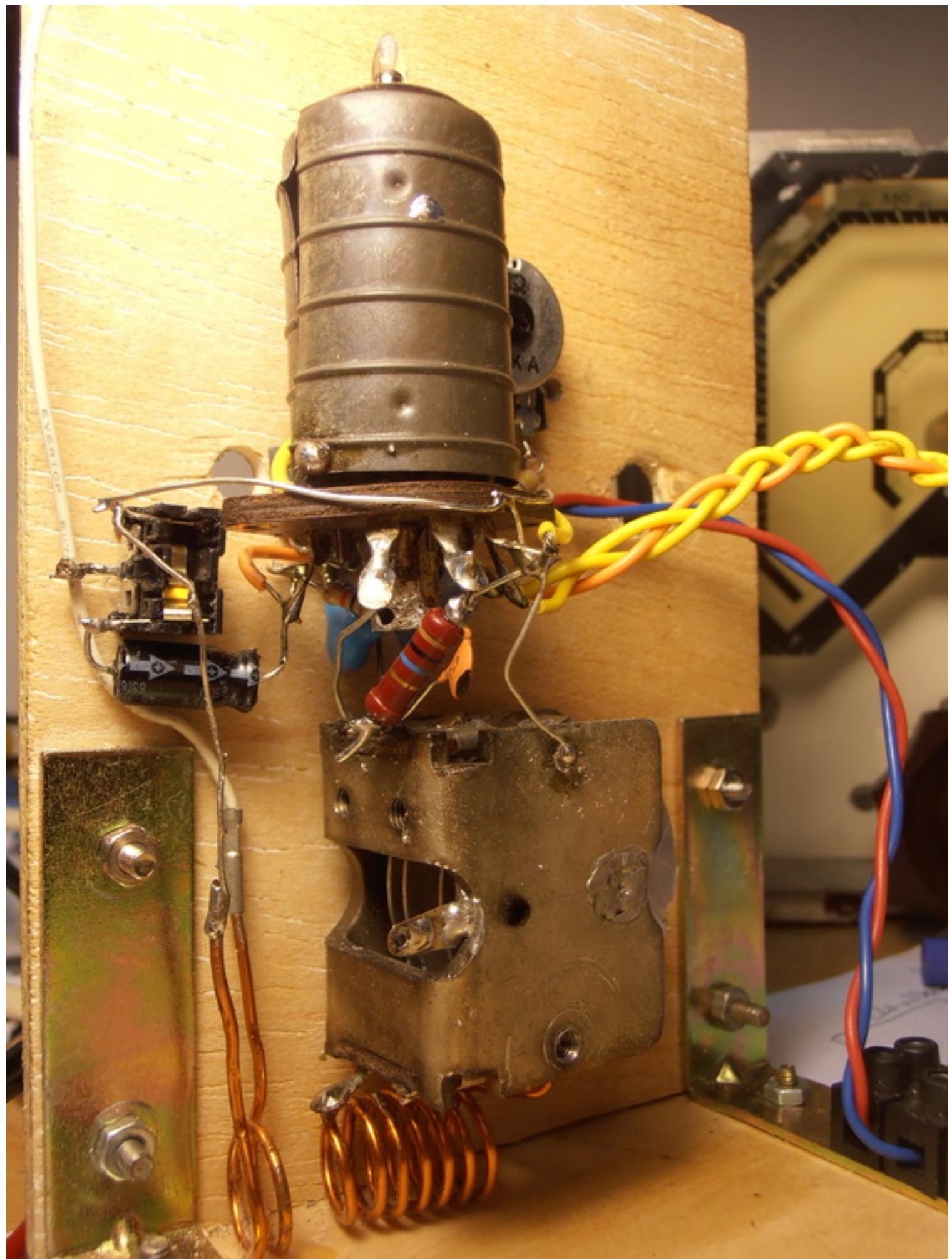
Ricevitore FM in super reazione con ECC81-12AT7

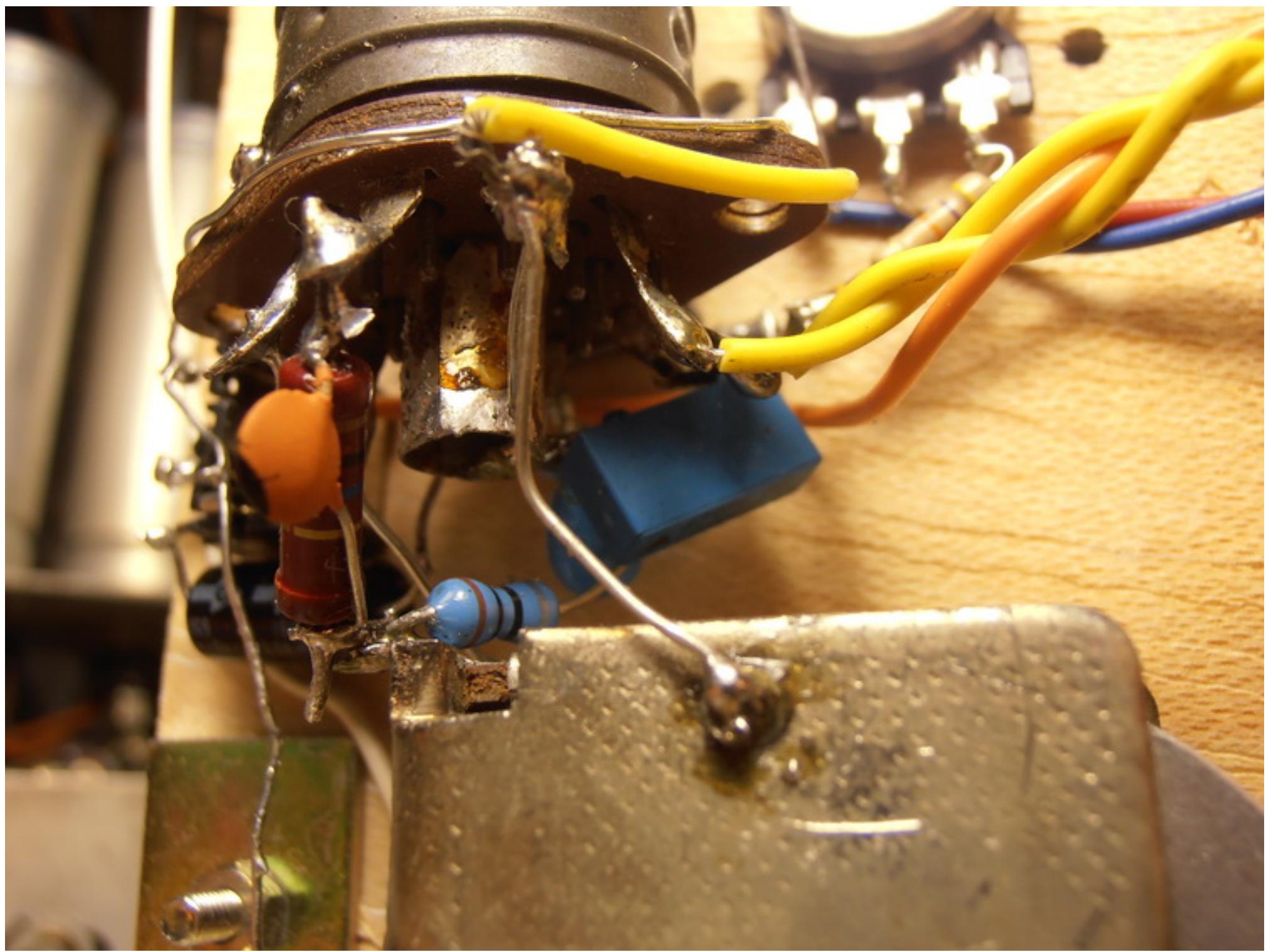


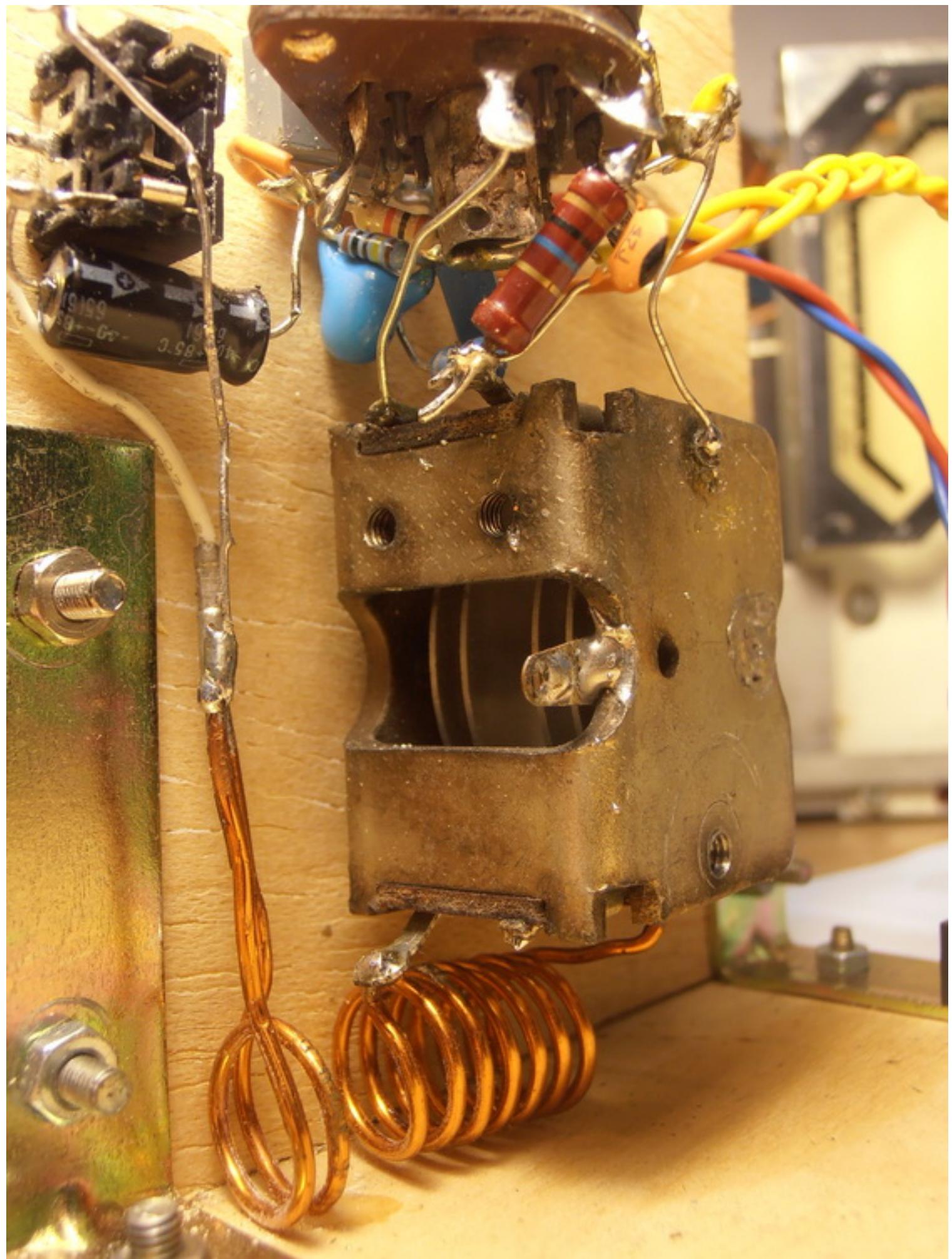


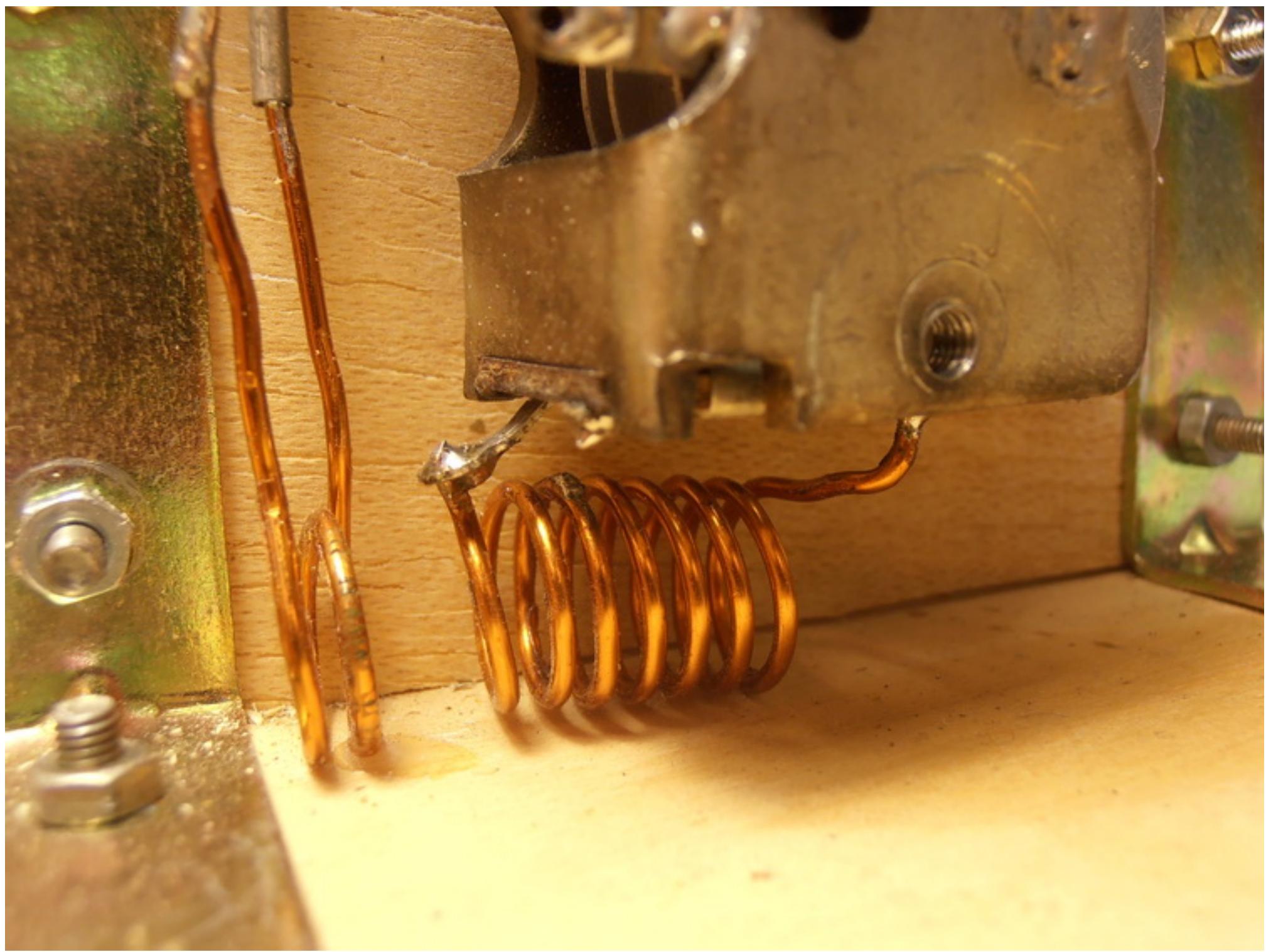


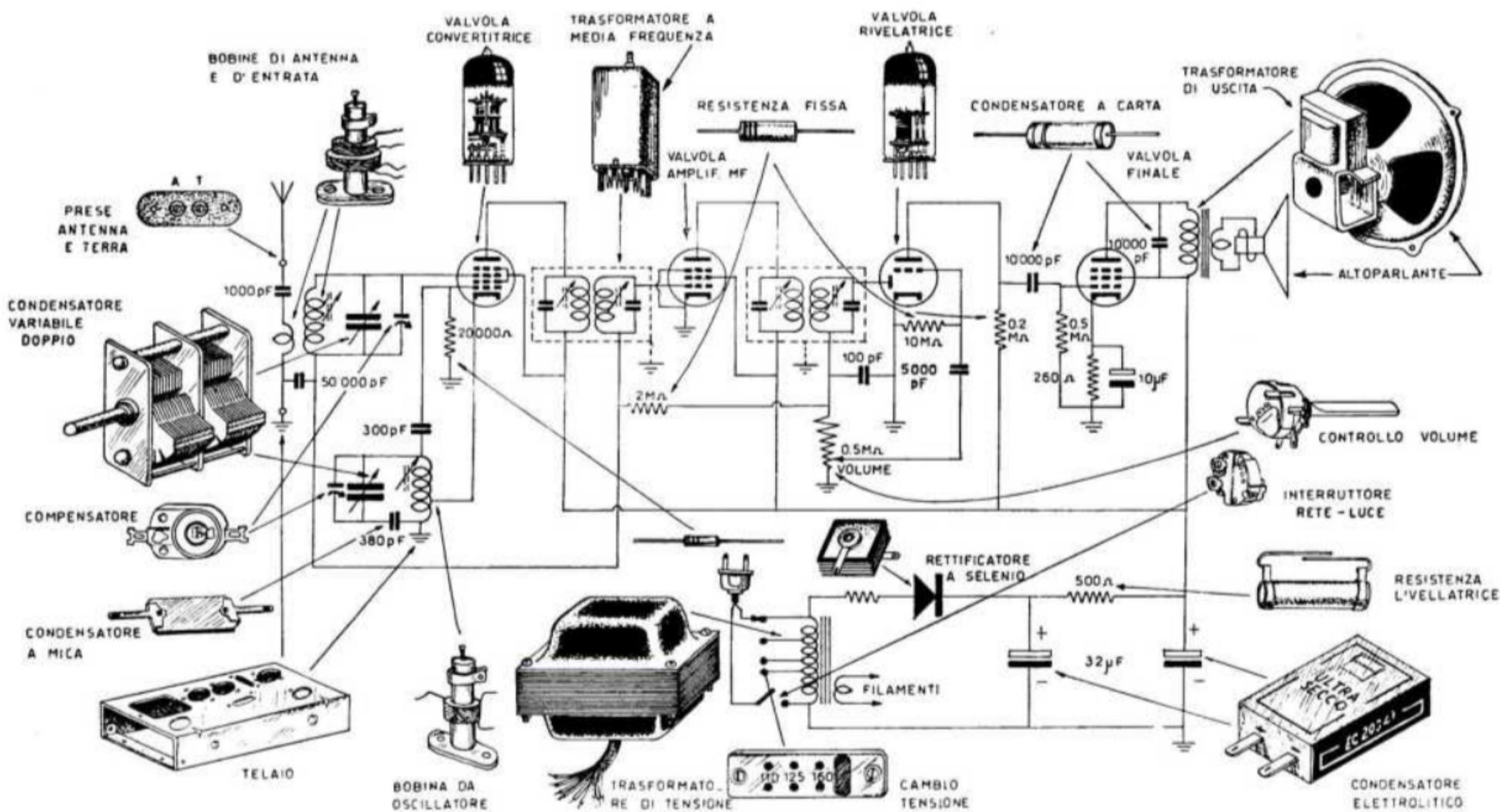


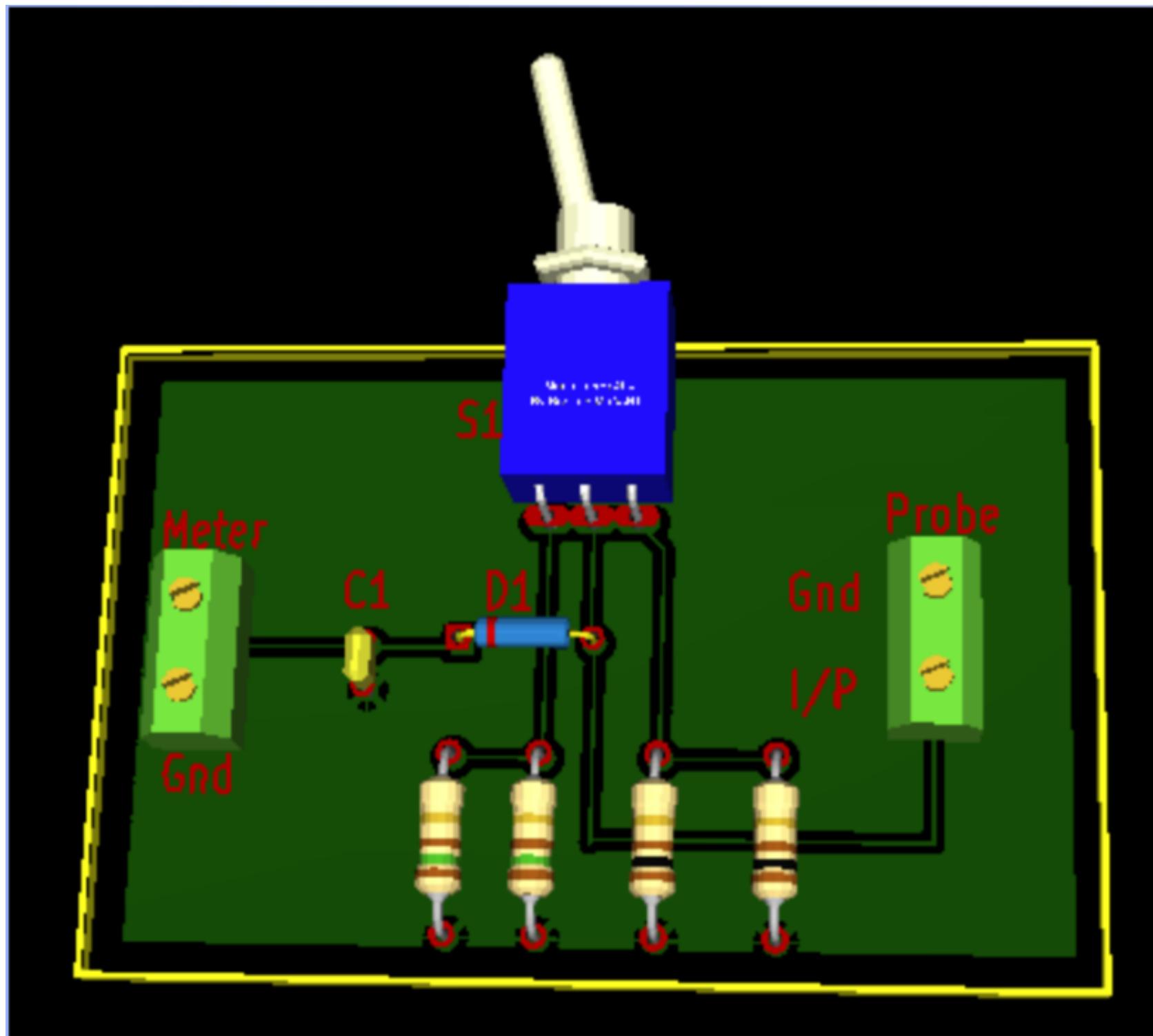


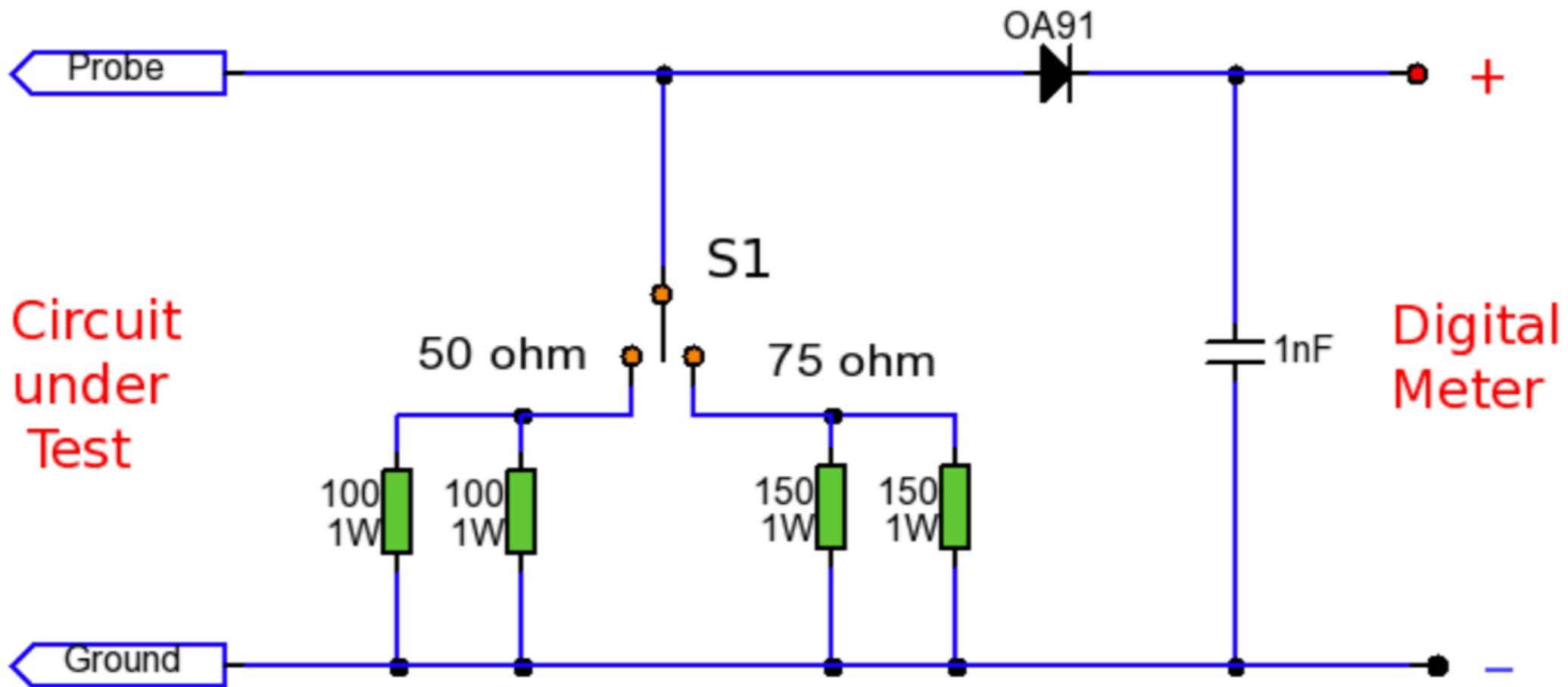










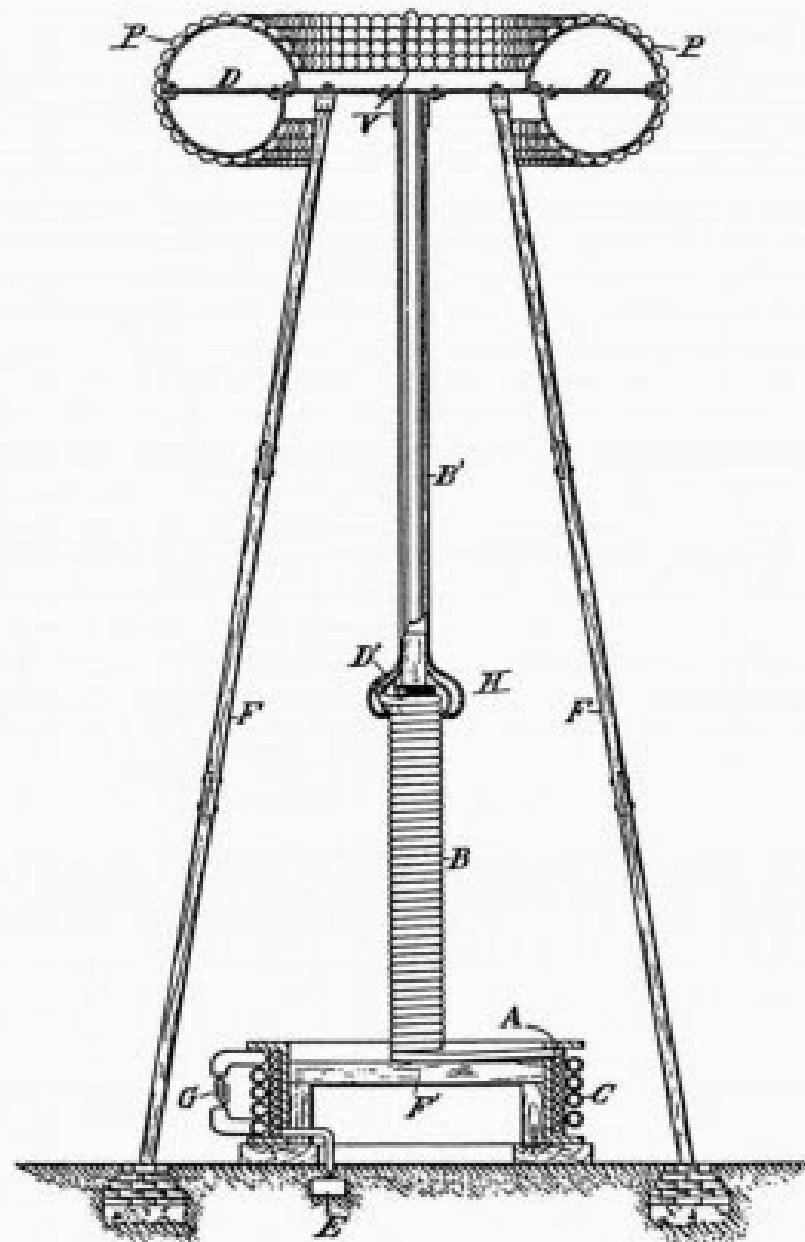


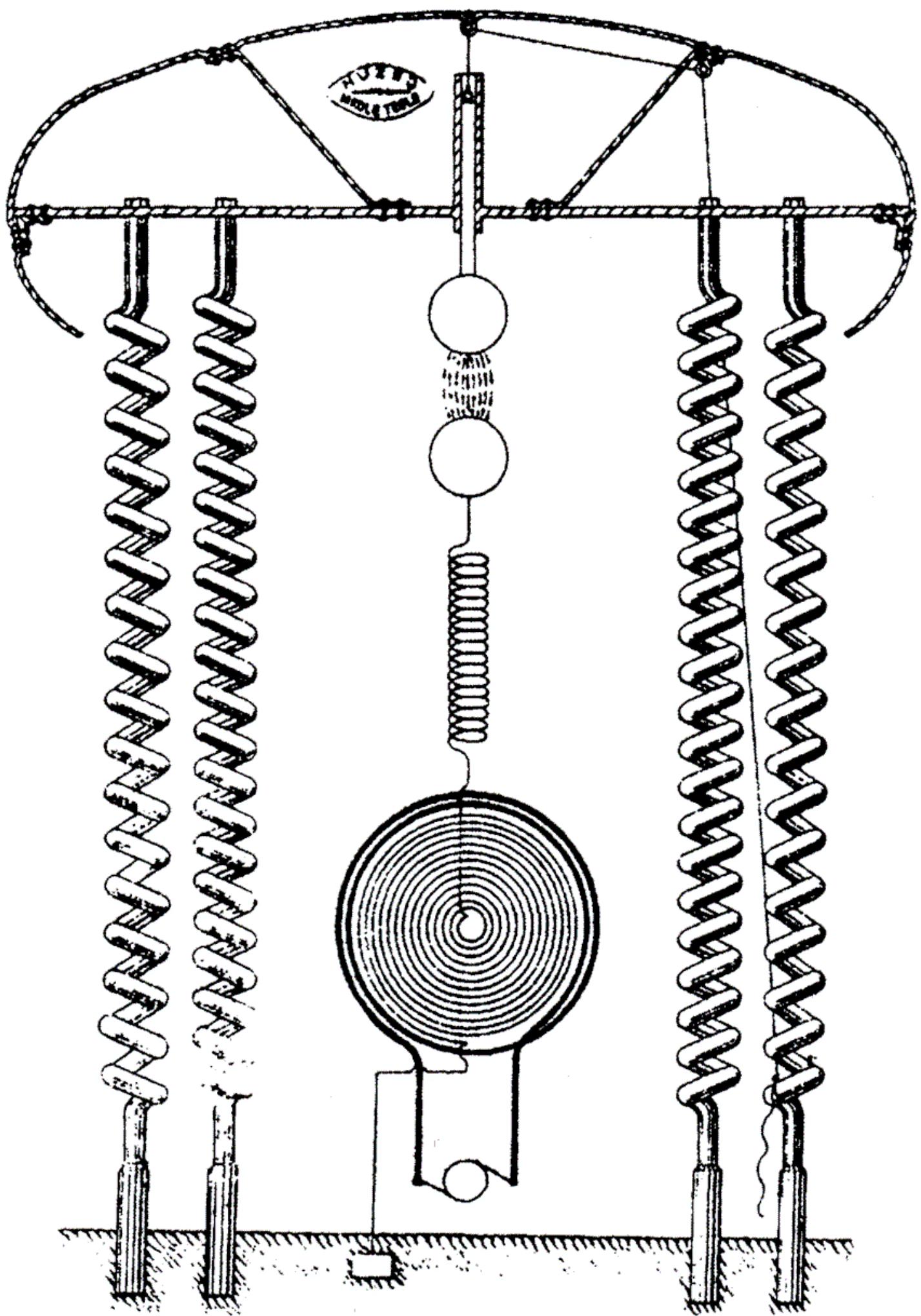
N. TESLA.

APPARATUS FOR TRANSMITTING ELECTRICAL ENERGY.
APPLICATION FILED JAN. 19, 1893. RENEWED MAY 4, 1897.

1,119,732.

Patented Dec. 1, 1914.





COSMIC VIBRATIONS

Octave	Manifestation	Vibrations per second	Gaps
1		2	
2	TOUCH	4	
3		8	
4		16	
5		32	
6		64	
7		128	
8		256	
9		512	
10	COLORS	1,024	
11		2,048	
12		4,096	
13		8,192	
14		16,384	
15		32,768	
16	CHINESE MUSICAL NOTES	65,536	
17		131,072	
18		262,144	
19		524,288	
20		1,048,576	
21		2,097,152	
22		4,194,304	
23		8,388,608	
24		16,777,216	
25		33,554,432	
26		67,108,864	
27		134,217,728	
28		268,435,456	
29		536,870,912	
30		1,073,741,824	
31		2,147,483,648	
32		4,294,967,296	
33		8,589,934,592	
34		17,178,868,184	
35		34,356,738,368	
36		68,719,476,736	
37		137,438,953,472	
38		274,877,906,944	
39		549,755,813,888	
40		1,099,511,627,776	
41		2,199,023,255,552	
42		4,398,046,511,104	
43		8,796,093,022,208	
44		17,592,186,044,416	
45		35,184,372,088,832	
46		70,368,744,177,664	
47		140,737,488,355,328	
48		281,474,976,710,656	
49		562,949,953,421,312	
50		1,125,899,906,842,624	
51		2,251,799,813,655,248	
52		4,503,599,627,370,496	
53		9,007,199,254,740,992	
54		18,014,398,509,481,964	
55		36,028,797,018,963,968	
56		72,057,594,037,927,036	
57		144,115,188,075,853,872	
58		288,230,376,151,711,744	
59		576,460,752,303,423,488	
60			
61			
62			
63			
64			The Vibrations in these octaves increase to an incomprehensible number per second.
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66			
67			
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70			The phenomena of psychic projections and soul essence occur in octaves considerably beyond those of any known material manifestations. Consequently, they must not be considered as immediately following any manifestations which we have shown on this chart.
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NOTICE

This chart was carefully compiled by the Editorial and Research Departments of AMORC College after consulting the most eminent scientific authorities on the subjects of physics and chemistry and comparing their observations and notations with the reports from the Rosicrucian laboratories in foreign countries.

There is a slight disagreement in regard to the rates of vibrations for the various keys of the musical keyboard, due to different standards of pitch in various countries, and there is some disagreement among scientific authorities in regard to the colors associated with various musical notes. This chart represents not only the consensus of most of these authorities but also adheres strictly to what the Rosicrucians have been able to demonstrate in their own laboratories and in the experiments of thousands of members in various parts of the world. Regardless, therefore, of any disagreement with authorities outside the organization, this chart is the authentic presentation of the Rosicrucian knowledge.

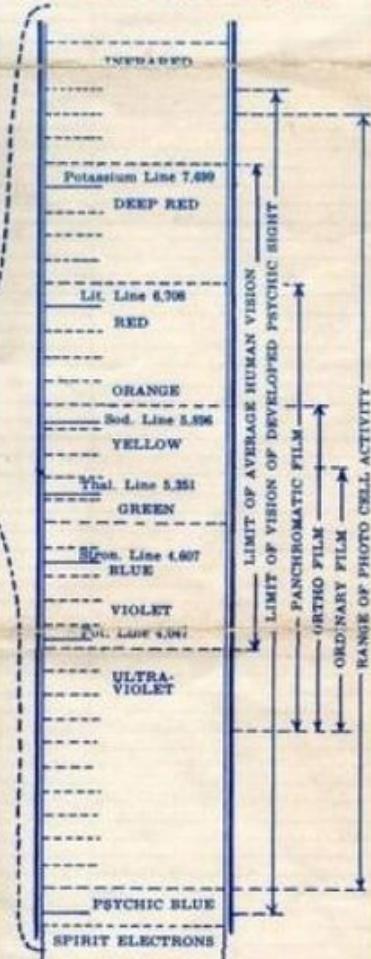
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